

POLYTUNNELS AND RURAL COMMUNITIES

Final Report

Prepared by the



For the

COMMISSION FOR RURAL COMMUNITIES



**University
of Worcester**

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EXECUTIVE SUMMARY

1. There can be little dispute that conflict in rural areas has increased in recent years as the 'traditional' order of the countryside becomes subjected to pressures for the reconfiguration of its space. Although precipitated in a local context, there are frequently national principles at stake.
2. The Commission for Rural Communities (CRC) believes that connections between rural people and the land are vital in defining the distinctiveness and future sustainability of rural England. One key question arising concerns the extent to which the countryside conflicts are a product of a change in the relationship between rural communities and the land.
3. One development that has exposed this relationship is the use of large-scale or 'Spanish' polytunnels for soft fruit growing in the horticultural sector. The practice has been popularly represented and simplified, by the media at least, as a polarised contest. The main actors are portrayed as, on the one hand, traditional growers seeking to improve the economic viability of their businesses and reacting to the social desirability of maintaining a supply of British produce. On the other hand, there are those rural residents, usually constructed as 'incomers', who are protesting against the appearance of plastic tunnels in the landscape and next to their homes. Nowhere has this conflict become more embittered than in the central western English county of Herefordshire.
4. The overall aim of the research is to investigate and analyse land use conflicts among stakeholders in rural communities, using the deployment of Spanish (field-scale) polytunnels in horticulture as an exemplar of the consequences of wider processes of rural restructuring. It seeks to identify the main issues, gain an understanding of different viewpoints and establish how they might be resolved.
5. The study reviews and critically evaluates secondary information published by grower organisations, protest groups and the media. It further examines legal case history and evaluates existing data sources. Primary information is gathered from key informants, including planners, estate agents, the police, supermarkets and through interviews with the main identified protagonists, as well as rural residents not aligned to any interest groups.
6. Data sources on land use and polytunnels are woefully inadequate. Only estimates of the area covered by 'plasticulture' can be established and there is an important distinction to be made between polytunnels and field-scale Spanish polytunnels. The use of Spanish polytunnels is highly locally concentrated so that general figures showing polytunnel coverage of land as fractional, as is preferred by growers, do not reflect the micro-geography of the situation. Protest can be directly correlated with the spatial incidence of Spanish polytunnels.
7. Polytunnels give growers many advantages in the cultivation of soft fruit, including increases in yield, fruit quality, length of the growing season and labour productivity. Supermarket supply programming systems can be identified as a major driver behind the new 'essential' nature of polytunnel cultivation.

8. Certain local residents have formed themselves into protest groups to campaign against the presence of polytunnels. These are often stylised as ‘incomers’ to rural communities, but they are in fact diverse collections of people united by personal circumstance. They appear to be well-organised and claim to speak widely for rural residents. Activists are especially concerned about the industrialisation of the rural landscape, as some have bought into the consumption of it. This affects their quality of life, certain aspects of which are becoming subject to reductionist interpretations such as a discourse about negative impacts on house prices.

9. Foreign workers, a large number of which are required to harvest the fruit from polytunnels, have become enrolled as an additional dimension to the conflict. Residents have objected to the appearance of ‘temporary caravan villages’ to house the seasonal workforce and have been critical of the quality of it. Communities have also become divided about the extent to which workers should be integrated with local people.

10. Environmental concerns are further bound up with the use of Spanish polytunnels, with numerous claims and counter-claims made about their advantages and disadvantages. The effect on landscape, the need for plastic, damage to soil quality, high chemical usage, loss of biodiversity, negative hydrological impacts and localised climate change are all items of heated debate. For example, growers are adamant that they use less pesticide in the polytunnel fruit production process compared with outdoor growing, but protestors point to the fact that the activity necessitates a far heavier deployment of chemical treatments than do conventional arable or grassland-based farming enterprises.

11. The planning system offers the prospect of regulatory control over Spanish polytunnels. However, its application has again varied spatially, with some local authorities requiring all polytunnels to have planning permission and others viewing it as beyond the scope of planning. In Herefordshire, a compromise operated in the form of a Voluntary Code of Practice. Following case law that polytunnels are development by virtue of their size, permanency and degree of attachment to the land, the Code has been withdrawn. Planners too have thus become enrolled in the conflict. Growers view the involvement of planners as unnecessary. In contrast, polytunnel protestors have high expectations of the planning system to control large-scale ‘industrial’ development, particularly in localities which have protected area status.

12. Each interest group has its own story to tell. Growers feel that they are in the public spotlight and are having to overcome a succession of hurdles whilst merely reacting to wider political-economic calls to build more competitive businesses. They felt that their businesses made a positive contribution to local rural economies in Herefordshire and were doing much to answer residents concerns over their operations. A large seasonal Eastern European workforce was employed, but tightly regulated and treated very fairly. Community impact of such labour was thought to be minimal, representing an extension of a traditional influx of casual agricultural workers into the county, as occurred with hops in the 19th and 20th centuries. Many environmental benefits were articulated. The planning system was a source of frustration, however, showing a

lack of understanding for the practice of polytunnel horticulture and being inconsistent in its regulation.

13. Protestors had witnessed a rapid expansion in the use of polytunnels and commonly feared that what they had seen in Herefordshire was the beginning rather than the conclusion of a land use trend towards the large-scale industrialisation of the countryside. This created objectionable levels of noise, dust and traffic which had a devastatingly negative impact on the quality of rural life. Workers were regarded as exploited, as was the environment. In all of this, most regarded the use of polytunnels for soft fruit growing not to be justified in simply pandering to the whims of consumers, egged on by supermarkets, who wanted all-year consumption of seasonal produce. They regarded the planning system as able to control polytunnels, as shown by legal case history, but were immensely frustrated at the ineffectual way they thought it had been implemented in Herefordshire.

14. For non-aligned rural residents, polytunnels are best described as a minor inconvenience with a sharp distance-decay effect away from the main areas of geographical concentration. A modest increase in traffic and deterioration in the quality of roads had been observed in association with polytunnel enterprises. There was a generally positive attitude to the presence of a large Eastern European workforce. Indeed, this precipitated expressions of national identity in that part of 'being British' was to uphold high standards of decency in the treatment of guests to the country, which they hoped growers were honouring. A groundswell of opinion was that local people created more problems of disorder than did foreign workers. Environmental concerns expressed were modest, there being a view that plastic tunnels did little to enhance the landscape. Flooding, to which the county had been extensively subjected in the summer of 2007 and was still uppermost in the minds of some residents, was regarded as a negative consequence of polytunnels.

15. In simplistic terms, polytunnels have become a dispute between the social and the economic, coloured by differing cultural perspectives whilst exposing the inadequacy of political processes to regulate the use of rural space.

16. Legal case history in the application of the planning process should, in theory, be able to provide a mechanism for conflict resolution, but different interpretations of complex judgments have limited the opportunity for closure.

17. Eleven drivers of the conflict are specifically identified, but improved information flows, openness and regularity of dialogue are all essential to building trust between all rural residents to the benefit of the entire community, a role which CRC is potentially well-placed to facilitate.

18. Such information would assist in (re)connecting rural people with the land, but it is important to realise that this will not make a difference to all in the newly socio-culturally constituted countryside. Some residents, whether long or newly-established, valued solitude. They enjoyed looking at land use, but had no desire to understand it or be part of it.

1. Polytunnels, Rural Communities and Conflict

Structural change in rural areas, precipitated by the reconfiguration of socio-economic processes at a national and increasingly global scale, appears to be proceeding with increasing rapidity and potency. In England, a major consequence is the rise in the severity of disputes over the use of rural space. Work in the early 1990s began to identify and explore such conflicts, conceptualising the countryside as 'contested' (see Murdoch *et al.* 2003). This research team characterised the imposition of a new differentiation of rural space upon the 'traditional' order of the countryside in four ideal ways (Marsden *et al.*, 1993).

- (i) Preserved countryside; characterised by active anti-development interests in local decision-making, most vocally represented by middle-class incomers (typically commuters). Nevertheless, there are new opportunities for landowners to meet the specific demands (leisure, industry, residential) generated by ex-urban groups, leading to conflicts over the changing configuration of rural space.
- (ii) Contested countryside; where landowners are dominant and can push through their developments, but are facing increasing opposition from incomers with preservationist ideologies (perhaps as retirees).
- (iii) Paternalistic countryside; where large landowners dominate the development process, which is piecemeal to raise income when necessary, acting as stewards over their property and the people within them.
- (iv) Clientelist countryside; localities where agriculture dominates and political structures operate in a corporate fashion to maintain and develop farming interests.

Central to this thesis was that from the 1980s there has been an uneven decline in the hegemonic control of agriculture over rural space and accompanying state regulatory mechanisms to keep it so. The importance of agriculture to the English economy has fallen to less than 2% of GDP and there has been a dramatic loss of full-time employment in the sector. At the same time, counterurbanisation, demands from urban residents (particularly for leisure opportunities) and the needs of other industries have all strengthened their claim to the use of rural space. Murdoch *et al.* (1993) argue that with the decline of a single national priority (the production of food through agriculture), a regionalisation of the English countryside has occurred. This has created room for different expressions to emerge about the best way forward for rural localities. Rural space is no longer a homogenous category (Woods, 1998a). The result has been a sharp observable rise in conflict from the previously quiescent rural backwaters.

There are many examples of rural conflicts to emerge in recent years. All have occurred where the activity does not conform to an individual's or group's preconception of an appropriate consumption of rural space (Woods, 1998b). These then become politicised as threatening rural lifestyles, crucially leading to dissent over the authenticity of particular cultural constructions of country life. Although precipitated in a local context, larger scale principles are frequently at stake because rurality is bound to conceptions such as national identity, social class structure and

environmental quality (Woods, 1998a). Amongst recent conflicts, which are by no means exhaustive, the following can be included.

- Clashes over farmers' methods of production, leading to disputes over food safety, animal welfare and environmental damage.
- Controversy over the banning of fox-hunting as a country sport.
- A rise in second home ownership and depletion of the availability of affordable 'homes for locals'.
- The closure of rural services, particularly the conversion of rural public houses to private dwellings, rationalisation of village schools and closure of Post Offices.
- The selection of sites for the burial of nuclear waste.
- The siting of wind farms in the countryside, especially within protected landscape areas.
- The building of new settlements close to villages to meet the need for more houses in England.
- Arguments over the establishment of a right to roam over unenclosed land, now extended to debate over a right to access coastal land.

As Woods (1998a, p.338) argues, 'These contestations transcend the private and public realms, the personal and the institutional – what may originate as an individual's moral or cultural statement can impact upon the nature of the contemporary rural local power structure'. In turn, these expose much wider networks in which the 'local state' is embedded (Murdoch, 1995). Hence, such struggles can challenge the existing way that rural space is regulated and reveal inadequacies in that regulation, building pressure for the reconstitution of rurality itself.

The Commission for Rural Communities (CRC) believes that connections between rural people and the land are vital in defining the distinctiveness and future sustainability of rural England. One interesting question that arises, which the CRC is keen to investigate, concerns the extent to which the countryside conflicts listed above are a product of a change in the relationship between rural communities and the land. Thus, the underlying thread of any dispute may relate to fundamental disagreement about the functionality of environment, agrarian priorities and control of the mechanisms to regulate the use of rural space. These views are coloured by the ingrained cultural experience of an individual, one that is often no longer founded within the tradition, ritual and custom of 'land'. Of course, one long-established theoretical point of debate concerns the cohesion, unity and harmony or rural living compared with urban life, going back to the work of Tönnies in describing the *gemeinschaft* (rural) and *gesellschaft* (urban) characteristics of social relations in the 19th century (Tönnies, 1957). Many counterurbanisers in particular have an image of rural places as idyllic, with their action of relocation representing an escape from the anomie of urban space. However, the rise of conflict in the countryside serves to compromise the level of well-being, cohesion and tranquillity that many seek or have experienced in the past.

The disputes just described do not auger well for the successful future social, economic and cultural sustainability of rural areas. Therefore, it is vital that attention is turned to the process of

conflict resolution within rural communities. This report engages with the idea of conflict resolution through a detailed examination of the controversial issue of the large-scale use of plastic ‘Spanish polytunnels’ in the soft fruit horticultural sector (Figure 1). It is a production technique that has been implemented in England at a field scale only within the last ten years, but has become the focus of a prolonged and sometimes vitriolic dispute. It has pitted growers against a section of local residents, and both in turn against local authorities that are seen to have the power to regulate the dispute and resolve the issue. Although growers, local residents and officials of local government emerge as the main actors, the enrolment of people within these groups is partial and fragmented. For example, soft fruit growers have different approaches to the use of polytunnels in their businesses, local residents vary in the strength of objection to the presence of polytunnels in their local environment and local government officials have been far from united in their approach to regulating the presence and scale of ‘plasticulture’ in their areas of jurisdiction.



Figure 1: The structure of field scale Spanish polytunnels, shown here without the plastic covering, to facilitate soft fruit production (raspberries in this case).

The media has played a dualistic role in the dispute, being manipulated by the various interest groups to convey their point of view whilst themselves manipulating the situation to sensationalise the disagreement in the interests of a good story. One area that has been in the forefront of the polytunnel conflict is the county of Herefordshire in western central England. In many respects, it conforms to Marsden et al.'s (1993) category of 'contested countryside'. The county lies beyond the main commuting belt for any large conurbation but is increasingly experiencing waves of incomers. Yet, in the opinion of some residents, Herefordshire 'remains the most agricultural county in England' (Don, 2004). Thus, it is logical that the county provides a particular focus of interest for this report as a case study, with evidence from areas throughout England drawn upon as appropriate.

2. Aims and Objectives

The overall aim of the research is to investigate and analyse land use conflicts among stakeholders in rural communities, using the deployment of Spanish (field-scale) polytunnels in horticulture as an exemplar of the consequences of wider processes of rural restructuring (Figure 2). It is focused primarily on the county of Herefordshire where the dispute has been of high profile. More specifically, the report has three objectives:

- to identify the main issues surrounding the use of Spanish polytunnels for field-scale horticultural production, establishing the evidence base as far as possible;
- to present and understand the views of the main rural stakeholders that have become associated with the polytunnels conflict, together with those of rural residents not explicitly aligned to any faction within the dispute;
- to provide indications of the way to resolve this conflict, as these may have wider applicability to the resolution of other conflicts occurring in rural areas.



Figure 2: Spanish, or field-scale, polytunnels have become an increasingly familiar, and increasingly contested, sight within the Herefordshire countryside.

3. Methodology

As stated in Section 1, the conflict over polytunnels has been most acute in the county of Herefordshire, in the southern Welsh Marches of central England. It is this locality that forms the main focus for the gathering of evidence to investigate the nature of the dispute. Key actors were identified and contacted in other regions, but it immediately became clear that conflict over polytunnels is not as yet widespread, being confined to just a few specific localities outside Herefordshire. Evidence from such other polytunnel 'flashpoints', drawn from the media, academic studies and case law, are also used as appropriate.

The study has employed a range of methodological approaches to the collection of evidence on which this report is based as follows.

- A comprehensive reading of media articles and literature that has appeared on the use of polytunnels in horticulture.
- A workshop with key informants, connected either directly with polytunnels or with resolving rural conflicts, who operate at a strategic level both within and beyond the county of Herefordshire.
- A series of targeted interviews with key actors, be they groups or individuals, identified as active within the dispute over polytunnels.
- An investigation of the views of 'ordinary' people on the matter through semi-structured interviews with different 'types' of rural residents in villages and market towns close to the main concentrations of polytunnels. This includes a selection of people stopped at the time the research team were visiting a location, those running various types of rural business and pre-arranged meetings with residents using local contacts.
- Responses from aspects of the business community in Herefordshire were obtained, including those with responsibility for the promotion and provision of tourism, supermarkets and estate agents. Law enforcement officers and officers of local government were further contacted as relevant.

In this way, a cross-section of the range of views about the appearance of polytunnels has been obtained. The purpose is to illustrate the issues that are being discussed rather than to provide quantitative data of opinion about polytunnels. Some of the views expressed may therefore come across as extreme, but serve as evidence to:

- indicate the polemic that has accompanied the development of polytunnels;
- explore the myths that have been built up and reinforced and;
- demonstrate the extent of the work that has to be done to resolve the conflict.

The report does not aim to take sides in the conflict nor lead to a recommendation that a particular stance on polytunnels be taken by CRC. Rather, it seeks to expose to a wide audience the nature of the conflict through the views and counter-views of three main groups of rural people:

- i) the growers;
- ii) the protestors;
- iii) the rural resident that does not strongly aligns his/herself with either of the above.

Added to these of groups are the views of the business community, stretching from small rural businesses (such as the village shop), through urban-based businesses with a rural interest (estate agents) to transnational corporations (supermarkets). Such businesses were also contacted to gain evidence to assess the validity of certain assertions about polytunnels that have been perpetuated in the media and articulated by the three interest groups identified above. Hence, some clarification of the factual base relevant to the dispute has been achieved.

The next section (Section 4) of the report provides a summary of the issues gained from secondary sources, verified where possible by further research into the nature of the sources and through primary field investigation. After this, Section 5 presents a synopsis of the views of each group. A vital point to remember at all times is that the content of each section is unattributable to any one person, business or group. Rather, they have been written as an amalgam of points made from numerous discussions with a wide range of actors, representing a generality of views to which not all persons aligned to a group necessarily subscribe at all times. The report then concludes in Section 6 by considering the lessons that can be learnt towards the resolution of future conflicts in rural areas.

4. An Exploration of Polyunnel Issues

The issues associated with the use of polytunnels in soft fruit cultivation are many, various in scale and deep in complexity. Whilst there is significant overlap between issues, it is possible to identify five recurrent themes that intertwine as strands of the conflict. First, there is a bundle of questions about why polytunnels are used in soft fruit growing, the drivers of change and prognosis for future land use. This necessitates an examination of the rationale for current practises and discernible trends using existing data and projections from with knowledge of the horticultural sector. Second, there are the changing dynamics of the rural population and how polytunnels impinge on the way rural people live their lives. Problems with noise, dust and traffic are perpetually raised in relation to the polytunnel method of growing and its associated infrastructure. A third important area concerns the workforce employed to ensure the success of soft fruit polytunnel cultivation. Views reported in the media about the influx of seasonal workers range from right-wing notions of nationality, identity and immigration, through inconvenience to everyday life to fears of petty crime and personal attack. Fourth, there are environmental concerns expressed, especially about water usage, pesticide use and landscape damage. Fifth, there is a contentious set of issues connected to the regulation of polytunnels by the state through the planning and environmental health systems of local governance. These regulatory mechanisms are complex and are subject to geographical variation in their application. They appear to be a particular source of frustration for the main actors in the conflict over polytunnels

4.1 The Use of Polyunnels in Horticulture

This first strand in the investigation of the conflict is concerned with establishing why polytunnels are now used in horticulture. A significant restructuring of this agrarian sub-sector of production appears to be indicated by the appearance of polytunnels in the landscape. Arguably, this is an overt, field-scale expression of the industrialisation of agriculture which has hitherto been limited to small units associated with pigs, poultry and glasshouse production. The recent and rapid expansion of 'plasticulture' inevitably raises questions about this being the commencement, middle or conclusion of a phase of development (see Section 5). The starting point is to examine the official statistics on horticulture available through data gathered by Defra.

(i) The Structure and Distribution of Horticulture in England

From the figures available, horticulture in England occupies approximately 1.6% of the farmed area, although the value of the crop is not reflected by this limited areal extent (Table 1). The high cost of inputs per hectare, particularly in the case of glasshouses, and the high labour input has led to the application of co-efficients in an attempt to portray more accurately the importance of horticulture. The most common one is the Standard Labour Requirement (SLR) used in the sampling and analysis of the *Survey of Agricultural and Horticulture* (June Agricultural Census)

data. A separate *Glasshouse Survey* is also conducted biennially to acquire more detail about this high-value horticultural sub-sector than can be gathered through the *June Survey*.

Table 1: Estimates of the significance of horticulture under glass and plastic in England, with specific reference to strawberry production.

	hectares, or % where stated			
	2004	2005	2006	2007
Total Agricultural Land England ^A		9,278,000	9,329,000	9,291,000
Total land under Horticultural Crops ^A		152,000	148,000	150,000
Horticulture % land England		1.64%	1.59%	1.61%
Strawberries % total human fruit & veg		2.2%	2.7%	2.2%
Area strawberries under glass ^B		105	##	##
Total glasshouse area* ^A		1790	1967	1875
% strawberries as total glass %		5.9%	##	##
Area strawberries inc polytunnels ^A		3100	3700	3000
Area of strawberries under glass ^B		105	##	##
Estimated strawberries grown in the 'open' (field and tunnel)	2995		##	##
Strawberries under tunnels ^C	1097		##	##
Estimated % strawberries under tunnels	36.6%		##	##
Raspberries & other cane fruit ^C	299		##	##
Cherries ^C	92		##	##

* Excludes polytunnels; ## - no data or data suppressed by Defra to prevent disclosure.

Sources: A – *Survey of Agriculture and Horticulture* (2004-7); B – *Glasshouse Survey* (2005); C – ADAS (2004) cited by BSF (2005)

Holdings classified as predominantly horticultural farms in the *Survey* represent 4.6% of those in England by farm type. Using a broader definition, the number of holdings returning horticultural outputs increases to 8.0% of total holdings in England. When compared with percentage land area (1.6%), the implication is that horticultural production tends to be practised on small-sized farm holdings. Moving to the recording of specific crops, problems are immediately encountered because there is a good deal of confusion about how polytunnels are treated. When Defra were contacted for clarification, it was stated that polytunnels are treated as 'crops grown in the open' for the purposes of data collection in both the *June* and *Glasshouse Surveys*. However, the *Notes on Completion* accompanying the *June Survey* form give clear instructions to farmers to include 'strawberries grown in ... walk through polytunnels' in the 'Glasshouse, plastic covered structures and protected crops' section! Similarly confusing is the definition of a 'glasshouse' in the *Glasshouse Survey* as 'any fixed or mobile structure of a height sufficient to allow persons to enter which is glazed or clad with film or rigid plastics or other glass substitutes.' Most observers would

consider polytunnels at least as 'mobile' if not fixed, able to accommodate people and certainly covered in a 'film' of plastic, yet Spanish polytunnels are specifically excluded from the *Glasshouse Survey*! Dialogue with farmers further suggests that they are not too careful how they complete this part of the form. The glasshouse figure of 105ha seems to be more reliable because growers are told to exclude Spanish polytunnels from their returns under this survey and this small size total reflects that strawberry cultivation is not a good economic use of expensive fixed glazed structures.

With no differentiation between crops grown outdoors, polytunnels and Spanish polytunnels in official data, there seems to be only one snapshot of the extent of polytunnel cultivation available (Table 1). The provenance of these data can be questioned as it originates from a private consultancy (ADAS UK Ltd), further filtered through a producer interest group (British Summer Fruits), rather than from an official source (the figures could not be verified directly). With this caveat, it appears that in excess of one third of strawberries were grown under tunnels in 2004/5. However, consultation with a range of experts, including representatives of producers, suggests that this figure is now widely inaccurate. Best estimates suggest that approximately 70% of strawberries by area are grown under polytunnels, due to the significant advantages that this system of cultivation delivers. Part of the variability for the area under strawberries shown in Table 1 between 2006 and 2007 is due to the sample survey methodology adopted for the June Census since 2000. Taking all the limitations on board, the area of strawberries under plastic in England can be postulated to be a minimum of 2000ha during the 2007 season. The area of other crops, such as raspberries and cherries, grown under plastic is simply unknown. Niche crops with new potential under plastic, such as blueberries, are not identified on census forms (there is a catch-all 'other small fruit' category). Even if recorded accurately, it is unlikely in the foreseeable future that areas under polytunnels would be disclosed, and certainly not disaggregated according to specific fruit crop, at county level for fear of infringement of producer confidentiality, unless a very considerable expansion of polytunnels did occur.

Clearly, the official statistics on cultivation using polytunnels are broad, lack differentiation and are subject to ambiguity and so are rather unsatisfactory at present for monitoring trends in plasticulture. Indeed, such data problems appeared as a handicap in a major analysis of the future of the horticultural sector conducted in 2005/6 by the National Horticultural Forum (Promar International, 2006). This is not surprising given the recent development of what is effectively a new form of land use with a local spatial expression. In the absence of data, one producer in Herefordshire was found through fieldwork to have conducted a fact-finding survey amongst growers in the county. It was established that there were 480ha of polytunnels in Herefordshire in 2007, spread amongst 17 farming businesses, said to represent 0.6% of the land area of the county (although this would be 0.26% compared with the officially recorded agricultural area of Herefordshire – see Table 2). Of course, it is to pro-polytunnel interests to portray the area under plastic as a small one given the controversy surrounding its use (Figure 3).



Figure 3: The view north-eastwards from Marcle Ridge, Herefordshire, towards the Malvern Hills. Polytunnels can be observed in the landscape, but are locally concentrated (as indicated) and form a small percentage of total agricultural land in the county.

The geographical distribution of horticulture is regionally concentrated and reflects a process of postwar regional specialisation. Table 2 indicates the geography of horticulture structured by local authority, although administrative and agricultural regions seldom coincide. It includes all administrative regions where horticultural production is equal to or greater than a half of one percent of the recorded agricultural area.

Table 2: The significance of horticulture by area across counties / UAs.

COUNTY / UA	Area Hort	No. Hort holdings	Agric area	% area hort
Medway	958	29	8574	11.2
Lincolnshire	31840	1247	508924	6.3
Kent	13527	991	237175	5.7
N & NE. Lincolnshire	3202	151	68607	4.7
E. Riding Of Yorks	9373	450	206244	4.5
N. Notts	4473	174	105571	4.2
Cambridgeshire	9772	489	251911	3.9
Worcestershire	4926	635	131164	3.8
York	585	32	17492	3.3
Herefordshire	5919	649	182153	3.2
Suffolk	9115	580	294216	3.1
Leeds	800	66	26450	3
Norfolk	12555	863	414509	3
Isle Of Wight	630	75	25724	2.4
West Sussex	2461	337	125281	2
Lancashire	4177	536	217617	1.9
Surrey	1049	199	66021	1.6
Cornwall & Scilly	4653	844	287633	1.6
Bedfordshire	1059	175	84440	1.3
S. Notts	551	68	46469	1.2
Warwickshire	1614	187	147154	1.1
East Sussex	1169	276	114103	1
Essex	2346	527	248126	0.9
Hampshire	1789	341	217059	0.8
Gloucestershire	1394	411	208464	0.7
Staffs	1134	266	190712	0.6
Shropshire	1229	322	271148	0.5

Source: *Survey of Agriculture and Horticulture*, 2006.

Summarising Table 2, it emerges that the main producing areas, with a general indication of dominant horticultural type, are:

- Kent (top fruit, small fruit);
- Merseyside / Lancashire (field vegetables);
- Vale of Evesham (field vegetables and niche crops, some top fruit);
- Surrey / Sussex (small fruit, top fruit);
- South Lincolnshire / North Norfolk / Cambs (field vegetables, small fruit, bulbs & flowers);

- Herefordshire (top fruit, small fruit);
- Essex (top fruit);
- Somerset (top fruit).

Nested within this general pattern is an even greater localised specialisation in glasshouse horticulture. These are small in areal extent but represent points of high capital and labour inputs. As noted above, the figures in Tables 3 & 4 can include mobile and film clad structures, but this effectively refers only to greenhouse structures and not to polytunnels.

Table 3: The most significant counties / UAs by area of crops grown under glass or plastic.

County / UA	Area (ha)	Holdings
E Riding of Yorks	154	111
Lancs CC	150	288
Isle of Wight	38	20
Grt Manchester S	11	26
Outer London N&E	8	19
ENGLAND	1967	5130

Source: *Survey of Agriculture and Horticulture, 2006.*

Table 4: The regional importance of horticultural production under glass or plastic, but excluding Spanish polytunnels.

	Area Under Glass / Plastic (ha)	Holdings Under Glass / Plastic
North East	20	93
North West	241	585
Yorks & Humbs	247	398
E. Mids	164	632
W. Mids	171	540
Eastern	##	##
London	16	46
South East	437	917
South West	##	##
ENGLAND	1967	5130

Source: *Survey of Agriculture and Horticulture, 2006.*

Table 3 demonstrates the difference between fixed glasshouse production and horticultural production in that, with the exception of Lancashire, there is little correlation between the main horticultural producing regions and crops grown under glass. Most glasshouse cultivation seems to be undertaken on the urban fringe of the former 'metropolitan counties', representing fragments

of an earlier tradition of cultivation based on closeness to market. This was eroded throughout the 19th and early 20th centuries by the expansion of urban communities. Table 4 provides the regional picture, a scale at which a stronger link is evident between glasshouse cultivation and areas of horticultural renown.

Given the lack of data, it is difficult to correlate the distribution of horticulture with an unknown spatial distribution of polytunnels. The use of individual polytunnels is widespread and a familiar feature of nursery production throughout England, and can be associated with specialist enterprises such as mushroom production. Herein lies another major source of confusion; that between polytunnels and Spanish polytunnels. Key potential actors in the main horticultural regions identified from Table 2 were contacted to comment on the existence of Spanish polytunnels in their area and on the level of controversy that surrounded them. One informant in North East Lincolnshire could not recall the use of any Spanish polytunnels in the county as a whole, so that it was unsurprising that he had 'not heard concerns from farmers, the general public or local planning authorities'. Consultation with planning authorities in Lincolnshire confirmed that no applications had been made for large-scale polytunnel development 'for many years'. Therefore, it goes without saying that polytunnels were not a controversial issue in this area, explaining the lack of articles on polytunnels in the media originating from the county. Controversy over polytunnels in rural areas is thus specifically linked to *Spanish polytunnels*.

Media coverage of conflict is indicative of the geography, so that the use of Spanish polytunnels is concentrated in Herefordshire, Gloucestershire, Cornwall, Surrey, Kent and West Sussex. The exception lies beyond the remit of this study, as Spanish polytunnels are used extensively for soft fruit cultivation (strawberries and raspberries) in Perthshire, Scotland. An area with a tradition in soft fruit cultivation, key differences in the form of clear exemption of polytunnels from planning control (as agricultural use) and employment of a workforce with a higher percentage of local people than elsewhere must go some way to explaining why polytunnels have not attracted controversy in this locality. In contrast, the southern Welsh Marches and South-East England are typically characterised as now being populated by affluent commuters or retirees and the production of horticultural enterprises there is based upon employment of a large foreign labour force. The use of polytunnels is reported by one national interest group, the NFU, to be increasing amongst farmers because it is the only means to produce economically under conditions now demanded by supermarkets, or by consumers, depending upon the perspective adopted. Trials appear to be underway with the application of Spanish polytunnel systems to other crops, such as asparagus and aubergines, so that there is potential for an expansion of area in the future. However, these are experimental at the present time and remain situated in those areas that have a history of horticulture and of Spanish polytunnel use. The spread of Spanish polytunnels to other, non-traditional growing areas of England seems to be some way off, constrained by farmer knowledge, infrastructure and the renewed profitability of arable commodities (wheat and barley). The controversy, ambiguity and potential cost of planning itself appears likely to be acting as a further brake on widespread expansion.

(ii) The Justification for Spanish Polytunnels in Horticultural Production

The main sources of information explaining the need to use Spanish polytunnels come from producer organisations' literature and websites: British Summer Fruits (BSF) and TunnelFacts at <http://www.britishsummerfruits.co.uk/> and <http://www.tunnelfacts.co.uk/index.html> are significant

The most commonly circulated claims to justify the use of polytunnels are as follows.

- Polytunnels permit an extension of the growing season, typically articulated as increasing it from eight weeks to six months. This leads to greater volume of production and continuity of supply, as demanded by supermarkets / consumers.
- An extended season means reduced need for imports, reducing food miles and the carbon footprint of production / consumption.
- Greater control of environmental factors means an increase in the quality and yield of produce, with a higher percentage of Grade 1 fruit, improved fruit shape and less low-value fruit for jam. It is only in this way that British producers can compete with foreign competitors who use polytunnels (in a less or un-restricted way).
- Plastic protects delicate fruit from the vagaries of the British climate, resulting in higher quality fruit, less wastage and lower cost to consumer.
- Lower labour costs are incurred as picking can occur regardless of weather conditions, with lower cost to consumers and higher wages to pickers.
- The need for chemical disease control applications is reduced because there is less fungal attack and Integrated Pest Management (IPM) using natural controls is easier to implement. Organic production is made much more viable.
- Employment opportunities in rural areas are enhanced as there is greater volume and consistency of produce to pick and to pack.

This has led to some well-publicised claims, some of which are easier to substantiate than others.

- 'The widespread use of polytunnels has improved performance in soft fruit significantly in recent years' (Promar International, 2006, p.55).
- 'The success of the British soft fruit industry can be largely attributed to the use of polytunnels' (BSF, 2005).
- Not using polytunnels would 'be the end of a successful British soft fruit industry and yet another agricultural failure' (BSF, 2005).
- Polytunnel use is 'led by forward thinking growers' (Clovis Lande Associates, 2002), 'attracting younger horticulturalists with modern skills' (BSF, 2005).
- 'There are no realistic alternatives to the polytunnel if the soft fruit industry is to remain viable' (BSF, 2005).

It cannot be disputed that polytunnel use has increased significantly the quantity and quality of fruit in the sector. Claims about the end of the British soft fruit industry are a question of scale. It seems likely that consumers would continue to demand British strawberries in the traditional

window of 'Wimbledon fortnight', and that some small scale Pick-Your-Own enterprises would thus survive. This supply would not be reliable and not conform with the buying practises centred on 'programming' now implemented by supermarkets, so large-scale production would not occur. The trade-off is between farmers concentrating on developing a short-lived but premium market for British fruit, such as strawberries, without using polytunnels and one of volume production at low costs and low prices for supermarkets / consumers.

(iii) Links to Consumers

The debate here surrounds issues concerning local food provision, food quality, regularity of supply and cheapness of product. Spanish polytunnels are potentially capable of delivering all these characteristics. These have been highlighted by some producers. For example:

- 'Ignorance has a large part to play: if people understand why we need the tunnels, they are happier to accept them' (Staffordshire grower, Horticulture Week, 2007, p.35);
- 'For years farmers have been berated for living off state handouts and not diversifying, yet here we are giving consumers what they want without subsidies and we are being berated again' (Herefordshire Farmer, Vidal, 2004).

To investigate the soft fruit buying habits and opinions of consumers is highly desirable but beyond the scope of this research. There has been significant academic attention to the topic of consumer engagement with local food (for example, see Hinrichs, 2000; Morris and Buller, 2003; Goodman, 2003; Winter, 2003). However, direct research into food from polytunnels is yet to be conducted.

Fortunately, some preliminary insights have been gained as a by-product of work conducted on local food cultures in Herefordshire, Anglesey (Wales) and Lincolnshire by Truninger and Day (2006). Through their consumer focus groups, they discovered something of a backlash from consumers against 'local' Herefordshire strawberries. One participant is recorded as saying "One thing I won't buy is strawberries in Herefordshire because they are grown in polytunnels" (Truninger and Day, 2006, p.16). Consumers were put off by environmental concerns (use of plastic, effects on wildlife, soil damage), perceptions of land acquisition by big companies driving small local farmers off the land and worries about the nutritional value of the fruit product. On the latter point, another participant stated "Most of the strawberries are now grown in polytunnels, and what I find horrendous ... what these chemicals are put on actually do to the plant ... I know they grow them but what do they actually do to the food, to the plant, that's what I want to know ... what I want to know is if it is the same nutritional value ... especially when they've been forced to grow faster than they should do ..." (Truninger and Day, 2006, p.16). This led on to further views that produce from polytunnels 'tastes like water' (ie. has no taste). In this case, the existence of such views were of greater significance than the accuracy of them, leading Truninger and Day (2006, pp28-29) to conclude that 'Participants' negative perceptions towards local strawberry production in polytunnels tarnish the often positive image that is conveyed by local food'.

Another way to obtain some feel for consumers' views and soft fruit buying habits, particularly those concerning taste, importance of localness and availability was to consult those large supermarkets operating in Herefordshire. Tesco, Morrisons, Sainsburys and Marks and Spencer were all contacted, with only Tesco declining to provide a local synopsis of their experience. Consumer demand was said to be steadily increasing year on year, but with peak demand still being felt in the traditional summer months. This could be skewed by any special offer, such as 'buy one get one free', or by calendar dates such as Valentine's Day and Easter. Additionally, weekends saw greatest 'footfall' and it was in anticipation of this part of the week that organic strawberries were sought (not enough could be sold on weekdays to justify stocking). The supermarket view was that buying habits were overwhelmingly dictated by price. Offers were made to reflect supermarkets' commitment to promoting healthy eating options amongst consumers. Supermarkets have a weak preference for British strawberries, except that some prefer to stock American strawberries because they are larger in size and feel they are demanded by a section of consumers. Many strawberries sold in Herefordshire in fact come from Scotland, with Herefordshire strawberries appearing on the shelves by virtue of the county being a large producer of fruit rather than through deliberate attempts at local sourcing (Head Offices were responsible for sourcing produce in all cases). However, when pressed, supermarkets would give preferential treatment to any supplier that could deliver a bulk quantity at the correct time, be they sourced from the USA, Morocco, Israel or Spain. Most supermarkets aimed for year-round supply, with one exception. Customers did prefer locally-sourced strawberries, but localness was defined by them as 'British grown' in preference to those imported from the USA. Hence, decisions by consumers' themselves to purchase was only loosely based geographical origin when compared with price. Demands for traceability of produce were deemed to be met by virtue of a statement of the country of origin on the packaging – in no cases were farm names labelled. No consumers mentioned varieties of fruit and thus expressed any preference for them. Some supermarkets had an overview of the situation as one of achieving a balance between pleasing the customer, by supplying the strawberries they demand, and the environmental cost of such supply.

4.2 Living with Plasticulture

(i) Community Reaction to Polytunnels

There has been a variable community reaction to the growth of polytunnels across England, mainly as a function of the type of development experienced. Those involving Spanish polytunnels have generated the bitterest disputes and thus greatest media attention. Most high-profile are the locally-based community action groups, which can appear large and well-organised from their websites, that have been formed typically to campaign against a large-scale development by an individual farm business in their area. For example:

- AVRA (Arrow Valley Residents' Association), formed 2004, which claims over 300 members - campaigning over the actions of S&A Davies (S&A Produce) in Herefordshire (with sites near Leominster at Brierley and Marden), <http://www.avra.uk.com/> ;

- Campaign for Polyunnel Control (CPC), established in 2002, which has a self-declared national remit but clearly operates with a specific focus on the Wye Valley Area of Outstanding Natural Beauty (AONB) in Herefordshire, <http://www.polyunnelcontrol.org.uk/> ;
- Tuesley Farm Campaign Group – campaigning against the actions of the Hall Hunter Partnership (growers) near Guildford in Surrey since the land was purchased in 2003 for fruit growing. It claims to represent 80 local resident families. The Tuesley Farm Campaign played an instrumental role in the legal action taken by Waverley Borough Council to control polyunnel development at this site, resulting in a ‘landmark’ ruling in 2005 that planning permission was required for polyunnels and the attendant windbreaks and mobile homes. In November 2007, however, Waverley Borough Council approved planning permission for a smaller-scale operation involving polyunnels than had existed before (20ha compared with 50ha). This was viewed variously by campaigners as a ‘betrayal’ of the democratic process expensively established through a planning inquiry, as a ‘politically motivated decision’ and as a U-turn. Membership has apparently increased to 200 following this latest decision, although some former members have withdrawn satisfied that a point of principle, that polyunnels constitute development, has been established through a ‘successful’ judgment. <http://www.tuesleyfarmcampaign.org.uk/>

These are supplemented by national environmental pressure groups, with the Campaign to Protect Rural England (CPRE) and Friends of the Earth (FoE) prominent in their support.

To present their arguments, community action groups have a well-developed internet presence and make their views known through extensive use of local and, occasionally, national media. In some cases, they have even been directly involved in legal action against polyunnel developments. Such campaigns work to imply widespread community solidarity against polyunnels and associated infrastructure, claiming to speak for all sections of the community. For example, the Tuesley Farm Campaign Group’s website is keen to dispel any representation of the campaigners as NIMBYs comprising ‘millionaires’ and ‘toffs’. It describes its supporters as including ‘a neighbouring farmer, retired people on fixed incomes and families with children on average incomes living in modest houses ... This is not a case of two or three individuals with deep pockets backing this campaign, it has been a genuine community effort.’ Counter-claims have been mounted by some growers who insist that even residents closest to polyunnels are supportive. Indeed, the Tuesley Campaign present evidence that growers actively seek local support (see <http://www.tuesleyfarmcampaign.org.uk/images/jpg/solicitation.jpg>), something that would not be attempted if there was no expectation of at least modest success.

Sometimes, the debate becomes narrowed. For example, Bill Wiggin, Conservative MP for Leominster is on record as stating “This row is about property blight. If your view goes from green field to shiny plastic, inevitably your property price will fall.” He states that house prices of affected residents fall 25-30% (Elliot, 2006; Hickman, 2006), whereas anti-polyunnel campaigner and TV gardening personality Monty Don suggests a 20% reduction (Don, 2004). These claims have

been refuted in the media by one North Herefordshire estate agent who declares that there is 'no evidence' of this (Brown, 2006). To investigate this assertion further, five estate agents marketing properties for sale in Herefordshire localities with polytunnels were contacted for their view on a link between the tunnels and house prices. All were aware of that polytunnels were something that potentially could influence the price and time taken to sell an adjacent property. There was a universal belief that houses abutting polytunnels were difficult to sell. One agent referred to a case where a property had failed to sell and was put forward to auction, only for it again to fail to sell. Another agent reported that 'nine times out of ten' people were put off buying a property close to polytunnels. There was agreement amongst all that the landscape impact of polytunnels, 'spoiling the view' from a property, was the most important direct influence on the decision to buy. Many buyers were seeking a rural view to escape urban living, but that polytunnels had industrial associations. Vendors located in an AONB, where views help to command a premium house price, had most to lose from polytunnels. Many potential buyers remarked on tunnels where present, and more so in the summer months when the plastic covering is in place. Reactions were individualistic, with some seeing polytunnels as a 'deal-breaker', some as one factor to consider in the buying decision and others ignoring it. Interestingly, some buyers were supportive of polytunnels for reducing food miles but didn't want to live next to them. Estate agents were vary about describing tunnels as temporary in the landscape, insisting that vendors had evidence to prove this was the case. Few buyers were said to possess the imagination to factor in the negative effects of a large foreign workforce and the traffic generated by plasticulture. In sum, houses very close to tunnels or to field entrances used by vehicles were severely affected, but with a sharp distance decay of influence. Properties further away but still with a view of polytunnels generally took longer to sell because discerning buyers would rule them out. One piece of hard evidence was uncovered where a property sale had been agreed, but polytunnels appeared in fields next to the property before the exchange of contract. The sale price was renegotiated after the buyers threatened to withdrawn their offer, the new price being £10,000 below that originally agreed. Clearly, this cannot represent even a 20% fall in price for a property in rural Herefordshire in the early 2000s. A 20-30% postulated price depression for houses next to polytunnels appears to be tenable only in theory. This is because residents in this situation adopt the strategy of 'sitting out' polytunnels in the hope that they will disappear rather than sell their capital asset at a knock-down price, even if a buyer could be found.

(ii) Farming, the Local Community and the Rural Idyll

Numerous studies into the processes of counter-urbanisation have been published over the last 20 years (e.g. see Halfacree, 1995). Frequently, consequences have been polarised as a conflict between incomers and farm businesses, with established residents assigned a more 'neutral' status. People moving to the countryside are stylized as holding idyllic ideas about what it is like to live in a rural area, in contrast to the reality of a working, noisy countryside. The bulk of media

reports on polytunnels represent an expression of the incomer/farmer conflict, as some headlines suggest:

- 'Painter protests at polytunnel plague' (Munn, 2002).
- 'Fields of plastic make Ed see Red' (Hughes, 2002).
- 'Tunnels across a great divide' (Hereford Times, 2002).

These headlines are often supported by dialogue that attempts to convey a lack of social understanding between groups:

- 'For those country dwellers who live side by side with polytunnels, the rural dream is becoming a bit of a nightmare' (Brown, 2006).
- 'Opposition comes mainly from newcomers to the countryside who expect a romantic view of green fields and do not understand the pressures on farmers ... they are mainly middle class retirees who have bought a view' (Herefordshire producer group spokesman, Vidal, 2004).

In most discourses surrounding this debate, farmers are viewed as separate from the rural community rather than as a part of it. It is not uncommon for protestors to portray farmers as a minority group in the countryside whose personal land use decisions affect the lives of many people. Statements to this effect have found their way into the media:

- 'Should a tiny minority of the rural population have such influence over a precious national resource?' (Don, 2004).
- 'The people who took control of the countryside (farmers) are a tiny minority, alienated from the population in general' (Norfolk Landscape Painter, Vidal, 2004).

Where the source of the conflict is not blamed on incomers, commentators point to the changing nature of farming itself, seen as a rise of 'agribusiness'. This perspective explains that the erection of polytunnels is merely a manifestation of the industrialisation of agriculture in a global, or at least national, context rather than a locally-driven process. Parallel to this is the influence of the major supermarkets in the food chain, which have been interpreted as dictating market conditions and driving the demand for soft fruit out of season. In turn, supermarkets say they are responding to consumer demand. Again, Bill Wiggin MP is recorded as saying 'I have not eaten a strawberry for about four years now and, as far as I am concerned, anyone eating strawberries out of season is encouraging the blight of polytunnels on the landscape' (Elliot, 2006).

4.3 Strangers in a Strange Land – Workers or Residents?

(i) Reaction to Workers and Workers' Accommodation

Horticultural production is a labour-intensive activity, especially for picking the fruit crop. The vast majority of workers are foreign, either from other EU countries or visiting Britain on seasonal worker visa schemes. In urban areas, especially in the south-east, the media have popularised this influx (most commonly sourced as Eastern European migrant workers) as 'stealing jobs' from local people. Racist undertones may be detected in the reaction to the horticultural workforce, but it is

the sheer volume of people temporarily moving into localities that impacts most upon the daily lives of those in rural settlements. Villages can be overwhelmed by workers whereas market towns can see a summer increase in population of 25-30%. The most negative consequence of this was that locals felt intimidated by large groups moving around. Even so, there was some sense detected in the larger settlements that people were becoming used to the 'summer invasion' of workers as they now knew what to expect. One resident remarked that they 'brighten up the town'. No-one felt threatened culturally, largely because the influx of foreigners was seasonal. Rather, local residents felt they had a positive opportunity to learn and understand about other peoples (such as through patronage of the specialist shops). Hence, locals still felt at home and workers had some familiar reminder of their homelands – neither group felt as strangers.

Beyond people, there is a visual and environmental impact of housing workers on site. Typically, there is a requirement for large numbers of temporary caravans and amenity buildings. For example, a source of contention for AVRA was the introduction of hundreds of mobile homes in Herefordshire by S&A Produce to house their seasonal and permanent workers, and the construction of an accompanying amenity building, all without explicit planning permission. The Tuesley Farm Campaign also focused on the 50 or so static caravans on the site. Additionally, concerns were raised about how sewerage systems at the site would cope with the increased demand, and the potential damage to aquatic environments and areas of nature importance.

(ii) Workers' Relations with Local Communities

Migrant workers could potentially provide benefits to the local community by creating a demand for services that may not otherwise be viable or otherwise make it more difficult for local people to access 'swamped' services. Local shops, pubs, banks, post offices and churches may benefit in particular. Interviews with owners of a range of small retail businesses in the Herefordshire market towns of Leominster, Hereford and Ledbury revealed that local businessmen gained little economically from the horticultural workforce. Workers are often working to save money to take or send 'home'. They are characterised as shopping almost exclusively in multi-national budget supermarkets. However, some specialist shops had appeared selling foodstuffs of Polish, Lithuanian and other Eastern European origin. Some village shops had benefited through extra custom, described by one shopkeeper as 'the jam on the bread'. Interestingly, there is mention in the Tuesley Farm Campaign of a pro-polytunnel community group headed by a local shop owner, although further details are unavailable. Post Offices represented a more complex picture, varying from no use at all by workers through to being saved from closure by the extra custom.

Seasonal workers and their families put an increased demand on local public-funded services; health and transport were specifically mentioned. Some of the larger employers had begun to mitigate against potential complaints by the provision of basic, on-site healthcare. With transport, workers are discouraged from bringing their own cars with them, so are reliant on public transport, potentially increasing use of routes that might otherwise be uneconomical. However,

many larger growers now have their own fleet of buses to provide transport and hitch-hiking is still a common practice. Producers are seen to be taking positive steps to prevent potential points of socio-cultural conflict. Some operators provide comprehensive sets of guidelines for workers. One possible inference from this is that 'anti-social' forms of behaviour were problematic amongst employees and required action. English language tuition may also be available. Consultation with local law enforcement officers revealed that besides the almost inevitable petty theft from shops, drinking in the streets of towns was the biggest problem. The relatively recent restriction on alcohol consumption in many of Britain's public spaces is unfamiliar to foreign workers and simple explanation is enough to gain compliance. Early evening is a busy time and late-night drinking is not an issue because most workers have early morning starts.

There are conflicting reports over levels of interaction between locals and migrants. It is clear that seasonal workers work long hours and fruit pickers are not required to be able to speak English. Large growers also provide recreational facilities, such as bars. These factors mean that there can be little opportunity, or even desire, amongst workers to integrate into the local community. Against this, some larger farm businesses or groups of residents have organised social activities, including English family visits, concerts and dances. Photographs from the S&A Produce website show examples of the farm workforce interacting with local residents, including:

- 'workers liaising with residents at the local community centre';
- 'playing guitars to entertain local residents';
- 'seasonal workers performing in a concert for the local community'.

However, these activities seem to do little to engender community cohesion and harmony amongst permanent residents. In one village, it was reported by a resident that a petition of 80 signatures was gathered in opposition to workers visiting the settlement and presented to the grower who then acted by banning workers from going there. This apparently sparked a counter-petition to get the ban over-turned which attracted 300 signatures, one-third of the population. That villagers are divided over the issue of workers is illustrated by the recent exchange in one village newsletter (Marden News and Views, 2008a and b). A letter from Marden Action Group states that the work of some residents in welcoming foreign workers through the Marden Welcome Club '... is not appreciated by many who live in the village' (Marden News and Views, 2008a, p.9). This provoked a flurry of responses criticising the anonymity of the Marden Action Group and vitriolic counter-attacks such as 'Do not therefore include migrant workers, who are innocent pawns, in your hatred of poly tunnels and everything that goes with it. That is a separate issue.' (Marden News and Views, 2008b, p.8).

Thus, evidence exists of involvement between the workers and at least sections of the local community, although this is something that has not received a great deal of publicity. Nevertheless, this type of activity does vary spatially. Residents of one village reported rarely seeing the workforce from a nearby polytunnel enterprise last season, even though workers had previously been a common sight. Evidently, where attempts have been made to establish linkages

with the foreign workforce, these are not universally appreciated by the rural community, even creating factional interest groups that are becoming pitted against one another.

4.4 Environmental Impacts of Poly tunnels

(i) Visual Effects

Landscape impacts are perhaps the most commonly cited objections to the erection of poly tunnels. A whole raft of effects is evident, including:

- a reduction in the 'openness' of countryside;
- loss of traditional landscape character;
- objections over scale, height, form and appearance of poly tunnels;
- negative influence on local property values and tourism;
- visual impact of workers' accommodation (typically mobile homes);
- contravention of designations of protected landscapes;
- despoliation of outward views from protected landscape areas (e.g. looking out from the edge of an AONB boundary);
- debates over the importance of topography and structure of the landscape (e.g. do flatter landscapes mean poly tunnels are more/less of a visual intrusion - less overlooking views, but harder to disguise with landscaping?);
- a loss of quiet landscape enjoyment through the generation of heavy traffic.

Opponents of poly tunnels make frequent direct reference to landscape:

"You have poly tunnels sort of raping the landscape – it is pure vandalism" (Gardener/TV personality Monty Don, BBC Money Programme; Britton, 2004);

"Pastures of plastic: how strawberries became a blight on the landscape" (Report in The Guardian; Vidal, 2004).

In recognition of the problems, BSF have issued a Code of Conduct (2005) based on the Herefordshire Council Voluntary Code of Practice (VCoP) (now scrapped). Many growers respect this Code and place emphasis on it, though some choose not to adopt it. Anti-poly tunnel groups are highly critical of it, regarding it as legitimising the illegitimate and weakening the resolve for enforcement (see Section 5). The mitigation measures include the following.

- Poly tunnels must be sited ≥ 30 metres from boundary of nearest residential dwelling, unless by prior agreement. They may be located closer to residential dwellings so long as they do not obscure views (from dwellings) and after consultation with residents.
- 'All reasonably practicable steps must be taken, using tree or hedge planting to mitigate the visual impact of poly tunnels, from the immediate view of neighbouring residential dwellings'.
- 'Where possible, growers should consider using less luminant types of polythene to reduce reflective glare' (e.g. light green coloured coverings to 'blend' into the landscape).

- 'Polytunnels should be rotated around the farm to minimise the impact, with a maximum period of three years in one location. Under exceptional circumstances, the demands of a particular crop (e.g. raspberries) may mean that polytunnels need to be located on the same site for longer than three years. In such situations, care must be taken to minimise the impact by siting the polytunnels as far away from neighbouring dwellings as possible'.
- 'The polythene covering over the frames must be removed for a minimum period of six months in any calendar year'.
- 'Growers must store unused polythene away from public view'.
- There are special requirements for polytunnels erected in areas of landscape designation (e.g. AONBs) and other statutory and local (non-statutory) designations. Specific measures are necessary to ensure that visual impact is minimised, including preparation of a landscape impact map showing areas of intended polytunnel operations and indicating what measures have been taken to mitigate the impact on the local landscape.

The question of the polytunnels affecting tourism through negative landscape impacts, and thus a major component of the rural economy, has been raised periodically. However, it does seem to have been accepted that this claim is very difficult, if not impossible, to substantiate because it makes reductionist assumptions about visitor knowledge and decision-making. Contact was made with tourism representatives and providers in an attempt to shed a little more light on this potential impact. Again, no hard evidence could be uncovered beyond beliefs and people stating that they knew of a tourist enterprise that had been affected. All that can be said is that tourists seldom comment upon, let alone complain about, polytunnels and few accommodation providers seem to have suffered detrimentally (although they are less likely to exist if severely affected!)

(ii) Plastic Sources and Sinks

The agricultural plastics market is dominated by a small number of large producers/importers. The polythene film used in polytunnels (usually Low Density Polyethylene or LDPE) has a working life of 3 - 6 years. Research by FAST Limited in 2007 has shown that a specialist type of clear plastic called Classic Luminance THB gives the best growing results, diffusing light more evenly to plants and contributing to the elimination of heat spikes (FAST Limited, 2007). It also causes less reflection to those viewing the landscape. Experiments with green plastic films show that they allow less light through to plants and are sub-optimal, even if they look better in the landscape (there is no objective research here).

Although created using oil, all plastic used can be recycled by sending it to a recycling plant (see below), as recommended by the VCoP. Clearly, more expensive polythene films will take longer to degrade. For example, the Sussex based company 'Solar Tunnels' manufacture a polytunnel consisting of two layers of polythene reinforced with a nylon mesh, thereby improving their durability - a product used by Monty Don on several television series. These may have some cost

advantages to growers, but the main problem is that they cannot be manufactured with sufficient width at present to be offered as a Spanish polytunnel covering. The same is true of a newly developed biodegradable plastic made from pea starch which is targeted for launch at the mass market of silage wrap (known as the TRIGGER project, it is being developed by a consortium of interests and funded under the EU's Sixth Framework Programme (see <https://www.aimplas.es/proyectos/trigger/files/leaflet.pdf>).

An estimated 2,278 tonnes of 'horticultural and crop cover' film plastics were placed on the UK market in 2006. This accounts for 6% of total non-packaging agricultural film plastics (i.e. includes silage plastics). However, figures for 2004 suggest that 'horticultural and crop cover' plastics generated 8,003 tonnes of waste, which accounted for 15% of non-packaging agricultural film waste (Agricultural Waste Plastics Collection and Recovery Programme, 2007). Fruit production crop cover has created a very localised pattern of waste plastic production in the UK, with the South East showing highest levels, but with significant waste arising in the West Midlands and East of England (see Section 4.1). Safe disposal of waste agricultural plastics is now mandatory (following recent changes in legislation), with farmers facing two main options: landfill or recycling. The latter is largely more costly, but it is increasingly adopted. Unfortunately, the UK has few processors which can, or are prepared to, recycle polytunnel plastic. A collection scheme is in action administered by Haygrove Ltd (tunnel manufacturers) and subsidised by a producer co-operative (Berry Gardens). The main problem is limited processing capacity. There is only one factory run by British Polythene in Dumfries and this takes all plastic from Ireland too, where recycling is subsidised. Another recycling route is to export to East Asian countries, such as China. The plastic is then processed, shipped back to the UK and sold as bin bags, for example (Farmers Weekly, 2007b). In theory, then, all polytunnel plastic can be recycled, though not for re-use as polytunnel film.

(iii) Pesticides

There are fears over heavy pesticide application and pesticide residues in polytunnel production. However, according to individual growers and growers' groups, including BSF, polytunnels reduce the use of pesticides by up to 50%. Figures vary widely in the literature, but 50% does seem to have become a 'benchmark' and often quoted by the media. As revealed in Section 5, a 30% reduction over applications to outdoor grown strawberries is more probable. Those protesting against polytunnels argue that this is a misleading argument as pesticide applications to arable crops would be significantly less than to any strawberry crop.

It is not disputed that a polytunnel protects fruit from moisture-related diseases such as botrytris (grey mould), downy mildew and (rainsplash) blackspot, therefore reducing the need to spray. They also provide an environment conducive to the use of natural pest control. This includes the encouragement of predatory insects as a biological control against species of spider mites and

thrips. 'Beetle-banks' can be constructed to house ground beetles, natural predators of weevils and slugs that attack soft fruit, although no grower mentioned this aspect during discussions (see Section 5). Therefore, polytunnels can theoretically promote invertebrate biodiversity relative to conventional agricultural systems. No peer-reviewed scientific studies are yet evident.

Further cited advantages are that the warm and enclosed environment within polytunnels increases the effectiveness of any pesticides used and greatly reduces the risk of sprays drifting away from the target crop. Polytunnels may be seen to facilitate the operation of IPM. Organic production is also facilitated by the controlled environment of polytunnels. In contrast, imported fruit grown under polytunnels is subject to the rules of the country of origin and may have been sprayed by non-UK or non-EU approved products.

Some unsubstantiated counter-arguments are apparent in media reports and campaign literature, including claims of increased use of pesticides to sustain intensive production and detrimental effects on workers' health due to chemical use in confined spaces. The strongest evidence of a change in chemical application practices is associated with the use of the Dutch 'El Santa' variety of strawberry. It is preferred by both growers and supermarkets for its yield, form and particularly shelf life. However, questions have been raised over its lack of taste. It is particularly prone to soil borne diseases such as verticillium wilt and growers therefore have to undertake chemical sterilization of the soil with chemicals such as methyl bromide (ozone depleting – targeted for prohibition under the Montreal Protocol of 1987 and implemented in the EU by Regulation 2037/2000). A prohibition was issued and 2005 declared a use-up period in which c.68 tonnes of the chemical were used (UK-wide, all crops). However, 'critical use' is still allowed, being reviewed annually by the EU. Treatments of strawberry fruit and runners fall within a critical use designation and accounting for the bulk of use of methyl bromide use across the EU in 2006 (Spain was allowed to use ten times the amount for its strawberries alone as approved for total use in the UK in 2006). It has been subject to annual reduction, with five member states using it in 2007 and only two countries requesting critical use in 2008, none of which include the UK. Growers state that no-one uses it any more and alternatives based on the chemical dazomet are available. It is further reported that experiments with more environmentally friendly alternatives, such as mustard-based fumigants, are in progress. The status of methyl bromide use in other non-EU producing nations (e.g. Morocco – reported phase-out date of 2115 – and Israel) requires further research.

(iv) Soil Quality

Fears have been raised over irreparable loss of soil fertility caused by soil sterilisation (see (iii) above) and soil compaction (leading to drainage problems) from fruit growing operations. According to the BSF group, sterilisation is not a common practice; however fumigation is sometimes used to prevent a soil borne fungal pathogen that can cause verticillium wilt (a fatal disease). This becomes virtually essential if a different crop susceptible to the disease, such as potatoes, has been grown in the ground prior to strawberries or raspberries. Fumigation destroys

organisms 6-8 inches below the surface of the soil and is effective for between one and three (occasionally four) years dependent upon infection levels. Growers argue that sterilising the soil does not cause permanent damage, with soil returning to its previous state within 12 months. Sterilisation has been the most controversial due to the usage of chemicals, but from a pedological perspective, it is compaction damage to soil structure that is potentially most serious, especially as soil damaged in this way is more easily eroded by water runoff.

As with the impacts of pesticide use, polytunnel fertiliser inputs have not yet been the subject of scientific scrutiny. With EU CAP reforms which prioritize soil and environmental health, perhaps this will feature more prominently on the agenda. There have also been objections to the use of peat as a growing medium. A catch-22 situation exists here in that the move to 'table-top' growing seems inevitably to mean an increase in the use of peat, yet the need for soil fumigation is reduced (compaction would not be reduced but potentially more severe in localised walkways around the tables). One horticultural business on Anglesey is quoted as saying although peat use is not ideal, it would continue to do so until 'the big power stations stop burning peat' (Forgrave, 2007). Other growers do not view the use of peat from Baltic states as problematic.

(v) Biodiversity Impacts

Fears have occasionally been expressed over potential loss of wildlife due to reduction in natural habitat and breeding/feeding areas (e.g. ground-nesting birds); the effects of soil sterilisation reducing soil biodiversity; and intensive pesticide use destroying the base of the food chain (see also *(iii) Pesticides* and *(iv) Soil Quality*). Views have been expressed, but the basis of them is harder to ascertain given that so little evidence currently exists. As might be anticipated, these are polarised according to interest group (see Section 5):

- "Swans and raptor sightings increased" (grower);
- "The loss of wildlife from the area appears serious" (local resident and objector).
- "I was unprepared for how pleasant it was in the polytunnel; a heavenly smell of strawberries and bees in the clover (visiting journalist – Wheatley, 2007).

That ambiguity exists over the effects of polytunnels on wildlife is encapsulated by one quote from a case study grower on the pro-polytunnel TunnelFacts website who reports: 'Swans [are] at record levels to the extent that nature enthusiast [sic] are monitoring the birds because we have so many types of swans', hinting at a causal link!

The strongest biodiversity claim associated with polytunnels has been made in a Spanish context, where a BBC news report in 2002 asserted that polytunnel development over large areas of the Spanish countryside was directly contributing to the extinction of the Iberian lynx (ignoring that rabbit decline and habitat fragmentation from road-building are more fundamental to its fortunes). In the UK, there are no equivalent expanses of plasticulture that are sufficient to threaten the habitat of any one species. The Royal Society for the Protection of Birds (RSPB) was contacted for a view on potential effects of polytunnels on birds. No position had been developed

and no research programmes initiated, but RSPB added that it may well be a potential area of interest in the future. Thus, claims are based on anecdotal evidence and incidental sightings rather than sound conservation science. So, tales of birds landing on plastic mistakenly thinking that it is water remain just that. Perhaps growing concern over declines in farmland birds will provide a stimulus to initiate such work. Probably of more significance to wildlife than the polytunnels themselves is the amount of disturbance associated with intensive cultivation. Regular movement of vehicles and people, especially where polytunnels are concentrated, are unlikely to be conducive to biodiversity.

BSF, which claims to represent 98% of all British soft and stone fruit growers supplying supermarkets, state that their members adhere to British Retailer Consortium standards of agricultural practice. This covers responsibility to the consumer and to the environment. All growers are members of the Assured Produce Scheme, which promotes the safe and environmentally friendly production of fruit, salads and vegetables. Growers may also be members of environmental/conservation schemes operated by the supermarkets they supply, such as the 'LEAF (Linking Environment and Farming) Marque' of Waitrose or the 'Field to Fork' scheme of Marks & Spencer. Supermarkets have become keen on such initiatives as a method to ensure consumer confidence in food products and thus gain a competitive advantage.

(vi) Hydrological impacts

Water management varies between polytunnel sites and, again, a scientific evidence base is lacking. Theoretically, the controlled environment of the polytunnel allows careful and considered use of water. Drip systems are typically used to irrigate soft fruits; efficiently installed and maintained, these ought to ensure sustainable water use. A move to table-top production also gives more control over the efficient use of water, where leaching into the soil is avoided. Concerns have been expressed about over-abstraction of water from rivers and groundwater as polytunnels prevent rainfall from making a contribution to plant growth. This is despite the fact that the Environment Agency tightly regulates both Ground Water Management Units (GWMUs) and Water Resource Management Units (WRMUs for surface water) through a time-limited licensing process (typically 12 years). The Wye Valley Catchment Abstraction Management Strategy (CAMs) document makes it clear that each application made for a water abstraction licence in this catchment (as in others nationally) will be considered on its own merits after impact assessment (Environment Agency Wales, 2007).

Concerns have been expressed that increased water run-off may lead to increased flooding risk and drainage problems. The former Herefordshire VCoP states that 'steps should be taken to effectively manage [sic] run-off and where possible polytunnels should be sited to reduce the impact of run-off'. The BSF group argue that although rain is shed into tunnel rows, increasing run-off from sloping fields, careful water management using drains and gullies allows this water to be diverted into water courses for irrigation. Media interviews with growers make reference to the

sophisticated water capture systems that have been developed. However, as Section 5 demonstrates, growers are unlikely to invest the time and capital in establishing sophisticated water capture systems on tunnels that have to be rotated on a regular basis. Those opposed to polytunnels focus on the fact that the need to irrigate consumes fuel and creates noise for residents through the pumping process. Flooded country lanes are also notable for the regularity with which they are reported (see Section 5; Figure 17).

(vii) Atmospheric Effects and Climate Change

With the inability of current science to determine whether climate change in the UK will lead to warmer conditions or to an increased frequency of wetter storm events, this is an area of much speculation. Warming climate in the UK may create ameliorating soft fruit cultivation conditions, potentially reducing the need for polytunnels in the future. Alternatively, increased disease incidence and virulence and unpredictable/extreme weather events may increase the need for polytunnels. The wet summer of 2007 is used as an illustration that outdoor cultivation of British strawberries is not viable and fruit must be protected from the weather. Research is required to establish the significance of polytunnels in affecting biodiversity by creating changes in micro-climate through the generation of localised heat islands.

Carbon emissions are thought to be important in promoting a trend towards a warming of global climate, one significant carbon footprint being made by food imports from overseas, particularly soft fruit delivered by air freight from Spain, France, Africa and the Americas. Negative effects of polytunnels, together with the processes used to accompanying manufacture them and distributional logistics, must be counterbalanced by consideration of their potential dual role in reducing the causes of global climate change and dealing with the effects of it.

4.5 Regulating Poly tunnels

(i) Planning, Agriculture and Poly tunnels

Decisions taken in the 1940s, when the 1947 Town and Country Planning Act was formulated, cast the mould for the subsequent approach to planning and agriculture in Britain. Whilst there has been a progressive tightening of restrictions on the construction and siting of agricultural buildings, farmers have not had to apply for planning permission for changes to land use (for example, to convert a field of grass to wheat). On the one hand, the erection of polytunnels can be viewed as an extension of agricultural land use change and thus beyond the scope of planning control. On the other hand, polytunnels can be interpreted as the construction of a building and so subject to regulation through the planning system. A key point of dispute centres around the longevity of polytunnels as structures within the countryside. Some parties view them very much as temporary structures that can be removed easily at any time whilst another school of thought

maintains that they effectively become permanent once erected. The latter view is the dominant discourse reflected in media reports, as sampled below.

- ‘Our council does not have powers to control polytunnel structures of a temporary nature, with no concrete footings. These temporary structures last nine months of the year from December.’ (Local resident, Hereford Times, 2002).
- ‘It is sad to witness each year more green fields being *lost* [our emphasis] to this plastic blight’ (Local resident, Hereford Times, 2002).
- ‘...classing polytunnels as temporary structures allows these to be constructed anywhere without planning consent to *destroy* [our emphasis] our finest landscapes, an AONB, surround a village, or be in front of any persons’ home’ (Local campaigner, BBC Countryfile, 2002).
- [demonstrating the permanence of polytunnels] ‘On winter nights, the huge steel hoops whistle, ring and clatter like haunted tuning forks’ (Brown, 2006).

One interesting feature is that words such as ‘devastation’, ‘destruction’ and ‘ruined’ are used in the past tense to suggest that the impacts of polytunnels are long-lasting and irreversible by default. The words ‘vandalising’, ‘catastrophe’ and ‘raping’ have also been used periodically, as has the slogan ‘Your village could be next’ (Wickton Action Group), demonstrating the emotiveness associated at times with this issue.

(ii) Geographical Extent and Local Issues

Polytunnel control is a function of ‘... the interpretation of planning regulations [which] is a matter for the local planning authority in the first instance’ (Barry Gardiner MP, Hansard, 2007). In contradiction, one Hampshire grower argues ‘Only central government can be sufficiently objective to determine the future of the industry’ (Horticulture Week, 2007). Consequently, there exists considerable geographical variation in the way in which planners intervene to regulate Spanish polytunnels, if indeed they do at all. For example, in Scotland, polytunnels retain agricultural exemption from planning, as reiterated by MSP Alex Johnstone (Carnoustie Today Guide & Gazette, 2006). Less controversy seems to be apparent where clear rules are followed, there being no media reports outlining polytunnel conflicts in Scotland (Section 4.1*(i)*).

In Herefordshire, the Council adopted the view that polytunnels were permitted development, but recognising that local residents could suffer negatively from their presence, devised a Code of Practice in 2003 that growers should follow on a voluntary basis (see *(iv)* below). Before the Tuesley Farm case changed the legal situation, this VCoP is reported to have provided guidance for other local authorities and to have been endorsed with slight modifications as a producer ‘Code of Conduct’ by NFU and BSF. Other local authorities have always taken the view that polytunnels require planning permission. A two tier planning system (rather than a unitary authority) seems to

have encouraged planning permission as a requirement due to the fact that only a handful of applications are likely to be made in smaller ‘District Council’ areas. This has added a major element of confusion and inconsistency where growers have operations in more than one county or district.

Table 5: Summary of the most common planning issues associated with polytunnels.

- *Visibility/Landscape character* – the prominence of polytunnels in the landscape is an important consideration. Associated issues include the potential of screening opportunities to reduce the visual impact, the cumulative impact of several smaller polytunnels developments, the extent to which the proposal respects landscape character and the appearance of the area, and potential impacts on designated landscapes (in terms of openness, rural character and scenic beauty).
- *Agricultural Justification/Diversification* – issues would cover the agricultural reasoning for the polytunnels, their economic need and the economic viability of the enterprise to which they would contribute.
- *Noise* – from spraying machines, drilling augers, pickers and traffic etc.
- *Rural Economy* – polytunnels can help support the rural economy and allow the growing of local produce which would otherwise be imported.
- *Biodiversity* – potential loss of wildlife due to reduction in natural habitats, feeding areas and effects of soil sterilisation reducing soil biodiversity.
- *Water run-off* – plastic sheeting forms an impermeable layer and therefore on a large scale can increase water run-off, with flooding more of a risk particularly following heavy rainfall.
- *Tourism/visitors* – the potential negative effect on the landscape could have a knock-on effect on the desirability of the County as a visitor destination.
- *Transport* – increased vehicular movements, traffic safety, site access etc.
- *Residents* – consideration of the impact the polytunnels would have on residents’ amenity living nearby.
- *Sustainability* – the use of polytunnels raises several questions in relation to their sustainability, for example; the use and disposal of plastic sheeting, metal hoops, pesticides, soil sterilisation, soil-less growing mediums, imported labour etc.
- *Siting* – are the polytunnels viewed as part of a farmstead alongside other agricultural buildings, or as an isolated development?
- *Coalescence* – the ‘built’ nature of polytunnels erected between distinct settlements could cause a coalescence effect.
- *Historic setting* – any adverse impacts on the setting of listed buildings and conservation areas.

Source: *Polytunnels Supplementary Planning Document Issues Paper*, Herefordshire Council (2007).

The geography of polytunnels is important because it is the scale (number and extent) and location (micro-geography) of them that can precipitate conflict. For example, in the Llŷn AONB (Lleyn Peninsula, North Wales), the Daily Post North Wales (2007) reports that one farm business received a 'rare' grant from the AONB to erect two polytunnels as part of a tree nursery diversification enterprise (not Spanish polytunnels). Another claim is that 'These polytunnels are springing up all over the place ... and ... They are expanding every year' (Local campaigner, Vidal, 2004). It has emerged that some individual farmers are concerned that if their neighbours have polytunnels, they may be prevented from following suit in the future due to the cumulative landscape and environmental impact.

Table 5 cites the main local planning issues associated with polytunnels. These have been summarised by Herefordshire Council following its decision to withdraw its VCoP for polytunnels, which was no longer tenable in the light of new case law, and develop a Supplementary Planning Document (SPD) to add clarity to its existing planning policies (see *(iv)* below).

(iii) Polytunnels and Protected Areas

The appearance of polytunnels has been more controversial in protected landscape areas, and Areas of Outstanding Natural Beauty in particular. A major source of resentment appears to be that growers do not need planning permission for agricultural activities, even in conservation areas, whereas residents have strict controls placed on them. This is exacerbated when farms proceed with work sometimes before applying for, let alone obtaining, planning permission. This serves to fuel residents' feelings of powerlessness because expectations of control are heightened and thus leads them to question the purpose of designating protected landscapes. Besides stating simply that polytunnels fall outwith the planning system, producers counter-argue that they need to be able to respond rapidly to changing market conditions on a season by season basis and make appropriate land use decisions. There are cases where farmers have been told to apply retrospectively for planning permission for polytunnels. Again, it serves to undermine residents' confidence in the planning system, suggesting that they were right in thinking that more stringent controls were needed in the first place.

Aware that polytunnels were becoming an issue in some protected areas, the Countryside Agency (2006) commissioned a report to explore the scale and nature of the issue in AONBs and National Parks. The report found that pressure for polytunnel development is in no way specific to protected areas. It was noted that the existence of a protected area did nothing to bring consistency amongst planning authorities in the treatment of polytunnels as permitted development under the Town and Country Planning (General Permitted Development) Order 1995, or indeed in their treatment as development at all. Further, there are techniques, such as the use of plastic for a mulch at ground level, that have a similar detrimental impact on protected landscapes as polytunnels, but which have no chance of coming under regulation (see Figure 4). Overall, this report is rather unsatisfactory, making a series of weak and rather muddled

recommendations that did not feature in the former Agency's approach to polytunnels. For example, it recommends that clarification is sought about visual quality being the prime objective of AONBs, when this was always the case and even re-emphasised relatively recently in the 2000 Countryside and Rights of Way Act. endorses the refinement of 'codes of practice' as a compromise route between growers and non-growers, yet in the planning appeal into polytunnels on land at Pennoxstone Court, Herefordshire, the Countryside Agency submitted evidence that 'The use of a voluntary code challenges these rulings [relating to polytunnels constituting building operations] as it effectively places polytunnels outside of the planning system and the tests applied to the GDPO in these appeal decisions'. Although backing codes of conduct in the report, a summary of evidence from the Tuesley Farm appeal case (Appendix J) provides a non-sequitur by stating that this 'appeal decision confirms the analysis of this report, that polytunnels do constitute development (by virtue of legal test), therefore require planning permission, and in the case of AONBs and other areas of high landscape quality would be hard to justify given their damaging effects on the intrinsic qualities of the countryside and its character.' (Countryside Agency, 2006).



Figure 4: Plastic mulch can be argued to have a similar effect on the landscape as polytunnels but is an agricultural practice that does not in any way fall within the jurisdiction of planning control.

(iv) Regulation: from a Voluntary Code of Practice to a Supplementary Planning Document (SPD)

A VCoP was developed by Herefordshire Council in 2003, although this is variously reported in the media as a NFU-inspired code (of conduct), and operated until its suspension in 2007. A Polytunnels SPD is now under preparation in Herefordshire, drawing upon and embellishing existing policies that have relevance to polytunnels in the Unitary Development Plan (UDP) for the county. It is evident that the approach to planning permission and polytunnels has evolved in piecemeal fashion as actions and decisions about individual cases have been subjected to legal challenge. Amongst the most significant rulings from the legal application of the planning system, and related actions with specific reference to Herefordshire, are as follows.

- The Cardiff rating case (1948), in which a mobile furnace was subject to rates only if its size and method of attachment to the ground defined it as a building (material determination). The Barvis mobile crane case (1971) was similar.
- Skerrits of Nottingham (2000), where a hotel left a marquee on one site for eight months of the year, which was judged to require planning permission.
- Brinkman Bros vs Chichester District Council (1999), where an appeal against an enforcement notice to remove 6ha of polytunnels within an AONB was dismissed (re-reported in the Ross Gazette, 2002).
- Publication of *The Voluntary Code of Practice To Control the Siting Of Polytunnels in Herefordshire* in 2003, reviewed 2004. Wickton Action Group released a statement claiming it was not working (2005).
- Norfolk garden centre polytunnels, within an AONB, were ruled to be 'buildings' (2004).
- Waverley District Council vs Hall Hunter Partnership, Tuesley Farm (2005), where an enforcement notice was issued against the stationing of workers' caravans and 40ha of polytunnels. This went to appeal in December 2006, being widely described as a 'test case', which was dismissed, leading to a presumption that all polytunnels needed planning permission (March 2007).
- Herefordshire Council immediately implements this ruling from Tuesley, including a need for growers to seek retrospective planning permission, and the Environmental Scrutiny Committee suspends the VCoP (Hereford Times, 2007).
- A Herefordshire farmer at Pennoxstone Court, King's Caple within the Wye Valley AONB appeals against an enforcement notice to remove polytunnels (May 2007). Growers and the NFU announce an application for a judicial review of the Council's decision that all polytunnels, regardless of size, require planning permission (Farmers Weekly, 2007a).
- The preparation of a new SPD is announced (July 2007) and an *Issues Paper* is released for consultation in September. A SPD release is anticipated in Spring / Summer 2008.
- The Department of Communities and Local Government issues a letter to all chief planning officers (August 2007) to clarify that the Tuesley case does not imply that all polytunnels need permission.

- In preliminary discussions to consider a judicial review of Herefordshire Council's decision on the need for all polytunnels to be granted planning permission, Herefordshire Council, on legal advice, concedes that permission may not always be necessary. Herefordshire Council withdraws the requirement that all polytunnels must have planning permission in mid-November 2007, a move that is widely lauded by growers' groups (NFU, 2007; freshinfo, 2007; BSF, 2007). The VCoP is announced as 'dead'.
- November 2007, planning permission is granted for a scaled down (20ha) area of polytunnels at Tuesley Farm. Planners are accused of a 'U-turn' by local protestors and grower organisations alike. Some growers' organisations (BSF) declared 'victory' or the prevailing of 'common sense' (NFU), whilst the Surrey Local News (2007) reports that protestors are 'horrified' and 'astonished'.
- The Appeal Decision into polytunnels at Pennoxstone Court in the Wye Valley AONB (November 2007) concludes that some tunnels are allowed under the 4-year GPDO rule, but that the appeal is otherwise dismissed and polytunnels must be removed or have permission because they are 'development', in line with the Tuesley judgment.
- A north Herefordshire grower loses appeals against planning enforcement to remove worker accommodation and associated buildings at Brierley, near Leominster and begins their removal (February 2008).
- Herefordshire Council approves planning permission for polytunnels on a reported 50ha of land at Wellington Heath, Ledbury, (February 2008) with zoning restrictions on where tunnels can and cannot be sited (Hereford Times, 2008a; Horticulture Week, 2008). The farmer concerned is praised for 'leading the way' by seeking planning permission and working through a 'solution'. Another Herefordshire grower holds an open planning consultation and reports 'overwhelming support' (Hereford Times, 2008b).

These legal rulings, especially the landmark Tuesley case, have led to the emergence of a three-part test in deciding whether polytunnels constitute a building or structure based upon the factors of size, permanence and degree of physical attachment to the ground. During the Pennoxstone appeal, the inspector determined that polytunnels:

- were of sufficient size to constitute development, based on a previous judgment over the Skerrits marquee;
- had the qualities of 'permanence', even if they were periodically removed;
- had a substantial degree of physical attachment to the ground through many hundreds of legs per hectare screwed into the ground using hydraulic machinery in order that tunnels may withstand potential wind damage.

Some rural residents (growers and protestors alike) fail to see the relevance of an SPD when there is already an UDP in place, which they have been reassured in the current interim period (winter 2007/8) is capable of addressing their concerns about polytunnels in the countryside (see Table 1). Planning officials counter that a SPD will add predictability to decision-making and will be

transparent to growers and residents alike. It remains to be seen if the publication of SPD serves to raise expectations of solutions or re-open some conflicts between residents and growers.

5. The Polystories of Poly tunnels

As can be expected, the views of polytunnel fruit growers and polytunnel protestors are often diametrically opposed, sometimes similar for different reasons, or occasionally concurrent. Misinformation appears as a hallmark of the conflict, with the actual situation on many specific practises difficult to ascertain. The grower-protestor protagonists are each vehement in the belief that their version of events is the correct one. Hence, the information presented here is that gleaned through the research process, both from primary and secondary sources. Comments are occasionally made about the reliability of this evidence where appropriate, but it is important to appreciate that what follows is an account of opinion generalised to illustrate the thoughts of each group. Considerable further research effort would be required to substantiate the veracity of many of the claims and counter-claims made. Consequently, it is absolutely vital that statements recorded here are not taken out of context as 'factual'. Even if evidence were available, it is not the aim here to judge what is right or wrong, but rather to convey how groups construct *their representation* of reality. The appearance of a statement in this report in no way necessarily implies endorsement by the authors.

The stories of poly tunnels as perceived, experienced and constructed by each group are presented below. For consistency, use is made of the subheadings established during the exploration of issues in Section 4.

5.1 The Growers' Perspective

It should be noted from the outset that whilst many growers belong to one marketing co-operative for the dispersal of their produce, this is by no means a homogeneous group which is arguing 'for' poly tunnels. Rather, this group is best described as a loose aggregation of individual growers who occasionally encounter one another at meetings of interest groups of the National Farmers Union (NFU) or under the umbrella of British Summer Fruits (BSF), a body that exists to promote UK-grown soft fruit. Some growers have radically different approaches to their use of poly tunnels than others, even seeking to distance themselves from other growers' approaches on occasion. Any pro-polytunnel campaign has therefore lacked focus and a strong sense of co-ordination as individual growers have mainly been left to deal with issues at a highly localised level. Only relatively recently (since 2004) has a website been developed to put forward the case for poly tunnels, called TunnelFacts (www.tunnelfacts.co.uk/). Such fragmentation has not been conducive to the flow of accurate information about the practises that are associated with plasticulture. This said, it is still possible to draw out a general view from this group of actors.

In terms of a collective identity, growers (the ones operating smaller enterprises in particular) were keen to denounce the image of them popularised by the media as 'strawberry barons'. Rather, they merely regarded themselves as growers who have been entrepreneurial. There is no

doubt that growers as a group feel under the public spotlight. Indeed, some were deeply uncomfortable with the amount of covert surveillance to which they are now subjected. Many have come to realise that horticultural production using polytunnels is controversial. If any pro-polytunnel campaign can be said to exist, then its current dominant message is to convey that farmers are now aware that a proportion of rural residents object to polytunnels and are open to suggestions for any ways to ameliorate their impact. Growers think that the fact that polytunnels have experienced a rapid growth in popularity has been the main factor precipitating concern amongst the general public. Growers realise with the benefit of hindsight that there could have been a more managed approach to explanations of their expansion. Particular efforts are being made to reduce the visual impact of polytunnels by considering more carefully their location at the field scale and in promoting screening of them (Figure 5). 'Open days' are now occurring more frequently, growers putting aside their fears about it being an opportunity for anti-polytunnel campaigners to gather 'more evidence' against this form of cultivation.



Figure 5: This grower in North Herefordshire has attempted to screen polytunnels contained in the field on the left of the image by allowing the hedge on this side to grow taller than would normally be the case (right hand side of the lane).

Up until 2007, British agriculture has suffered from a series of crises that has seen profitability fall and many (full-time workers in particular) leave the agricultural sector. Government has encouraged farmers to diversify their businesses since the mid-1980s to compensate for the increased economic marginality of food production. Poly tunnels are viewed as one positive response to this call, showing that farmers are willing to take notice of societal demands and react accordingly. The consistency of food produce that results from poly tunnel cultivation has given fruit growers the confidence to invest in the production process. Many have therefore committed large amounts of capital to production systems based on plasticulture. The conflict that has arisen over poly tunnels has served to undermine this confidence, returning growers to a situation of uncertainty. Overall, the growers see their task as explaining how they are catering for supermarket and ultimately consumer demand whilst contributing to the current mission of reducing the carbon footprint of production.

(i) Horticultural Justification

According to growers, the main driver of poly tunnel cultivation is the supermarkets who have moved from having general produce buyers to specialised category purchasers. Supermarkets want a British category of strawberries during the summer months as they argue this is necessary to meet consumer expectations. However, supermarkets require programming to know when and how much to import to ensure continuity of supply to consumers. Continuity of supply is a fundamental goal that supermarkets work towards. This can only be achieved through the predictability that poly tunnels bring.

Supermarkets further demand quality as a characteristic of this continual supply. Poly tunnels were the only way to supply produce of sufficient quality to supermarkets, mainly interpreted by them as length of shelf-life. Outdoor cultivation cannot provide the strawberries that the supermarkets demand because of the susceptibility of such fruit to mould which can be soil borne and promoted by fruit becoming wet. Hence, the demand for British strawberries can only be met through plasticulture, allowing competition against the imports that would otherwise be sure to be used to fill demand. Outdoor growing is not economically viable as a mainstream part of production, only as a sideline for some farmers who are able to offer locally-based pick-your-own (PYO) enterprises. PYO as a concept was felt to have had its day in the 1980s given that consumers were leading increasingly busy lives.

Growers have invested significantly in poly tunnels themselves and in other parts of a production process oriented towards growing under plastic, including workers' accommodation and recruitment, and packing facilities. It is expressed that poly tunnels had given the level of confidence necessary for growers to invest their capital in the production process. In most cases, planning permission had been applied for and subsequently granted for facilities such as packing sheds, endorsing the legitimacy of the whole production process in their minds. This had all happened before the prospect of the implementation of planning restrictions on field-based

activities – the polytunnels themselves – had emerged. From a brief period of certainty, growers had now been plunged back into a situation of uncertainty with its attendant layer of worry and new sense of frustration. To justify the capital outlay on packing facilities, which assisted in meeting the standards for produce laid down by the supermarkets, produce was imported from Morocco in winter months and from Spain in the spring. Strawberries flown in from California and Florida are also acquired to ensure consistency of supply.

Polytunnels were said to occupy a tiny fraction of land area (county or nationally), as evidenced from casual observation of the British countryside (see also Section 4.1). Growers were aware of the limitations of this argument, however, as polytunnel cultivation is characterised by a high level of spatial concentration in specific localities. Similarly, polytunnels had appeared most commonly in localities that had a history of farms growing soft fruit, sometimes going back three to four generations on particular farm businesses. Indeed, for some producers, it defined their identity as farmers to the extent that they could not imagine running a business that used land for arable or livestock enterprises. This explains why some growers present polytunnels as their ‘only option’, a socio-cultural boundary rather than a technical or economic one. Again though, this does not represent a consistent picture as some large-scale plasticulture farm businesses had had no experience with soft fruit, or even with related enterprises such as top fruit or hops. In the unlikely event that polytunnels were subject to a blanket ban from the countryside, conversion to arable crops was the only real alternative farming option that could be visualised though, as suggested above, not necessarily being grown by those currently involved in soft fruit production.

A vital question concerned whether or not polytunnel use would expand beyond its current localities of geographical concentration. Closely related to this was the potential to use polytunnels for a wider range of crops, as this would necessarily expand their spatial extent. Growers were unanimous in their response that there would be a very modest growth in the use of polytunnels and that the main period of expansion was well and truly over. Six limiting factors were identified:

- 2007 represents a significant turning point in the structure of a globalised agriculture because it has just demonstrated that future demand for cereal crops is likely to be high. The developing taste for wheat in new markets such as China and India, climate change and land use competition (for housing, bio-fuel crops and leisure) meant it unlikely that farmers would turn to fruit production *en masse*.
- The eligibility of land converted from grassland or cropland to horticultural production under the terms of the Single Farm Payment (SFP) was of little relevance and did not act as an incentive.
- Polytunnel cultivation has mainly grown from adjustments made by those with a tradition of soft fruit growing, so that knowledge and infrastructural support (for example, refrigerated transport distribution networks) act as significant barriers to entry to non-fruit farmers in other parts of the UK.

- The high level of capital investment to initiate plasticulture is another barrier to entry, especially as we are in a phase of innovation in growing techniques.
- Recent well-publicised planning disputes were now acting as a brake on expansion because of the additional costs of seeking legitimacy through the planning process.
- Other crops to which polytunnel practises could translate, such as asparagus, aubergines, blueberries or blackberries, were universally regarded as niche crops for which there would be no large increase in demand. Producers in other countries also held some elements of comparative advantage in these crops. Concerns over reducing food miles (and thus the carbon footprint) of produce imported from the developing world was likely to be counterbalanced by more vigorous emergent arguments surrounding the investment that had been made in offering developing world farmers a secure future through the supply of niche horticultural products, and not betraying them (see Berlins, 2008). It was noted that polytunnels have saved the UK cherry industry. Trees are covered for pollination in April, then vented by rolling back the plastic in May and June before being covered again to protect ripening fruit from rain which cracks the cherries.

Growers could not conceive that polytunnel production in the UK would ever become as geographically extensive as in the El Ejido region west of Almeria, Spain. This was a desert area with few competing land uses and a pattern of landownership that could not be compared to that in Britain.

If the area of plasticulture is not going to be subject to expansion, then one dimension that requires reconciliation against this is that of increasing demand for fresh fruit amongst consumers. Producers were agreed that the market for strawberries, the main crop currently grown under polytunnels (most 'ball-park' estimates placed this crop as accounting for in excess of 90% of the area under plastic), had witnessed year-on growth of up to around 20% over the last five years. The healthy eating '5 A DAY' campaign promoted in Britain by the National Health Service (NHS) under advice from the World Health Organisation (WHO) was cited as instrumental in this trend. Although now levelling off, further growth was held to still be achievable in the UK and that this would be 5-10% in 2008. Apparently, fruit consumption in the UK is still well below that of the USA, illustrating the potential for growth.

With limited spatial spread of plasticulture for the reasons just outlined above, a definite trend that could be identified was one of increasing intensity of production. More effective methods of irrigation (drip irrigation is the only suitable method as overhead irrigation wets the fruit and promotes the growth of mould), development of varieties of strawberry suited to polytunnel cultivation (such as Elsinore) and research into the type of plastic used were all on-going. However, one development stood out as offering most immediate scope for intensification of production, namely that of table-top growing. Table-top growing involves the placement of metal trays on vertical posts. Such legs require precise installation, which is achieved through laser-sighting technology to give a consistent 3 degree fall of slope, to ensure effectiveness of trickle irrigation systems (avoiding localised 'ponding' around plants – see Figure 6).



Figure 6: Table-top growing involves the precise fixing of 'legs' within the polytunnel structure to aid the effectiveness of trickle irrigation, but also necessitates permanent tunnels to justify the capital investment.

Plants are grown in bags of compost, typically peat sourced from the Baltic states or coir (fibres from the outer shell of the coconut) from India. This means that the characteristics of the soil over which polytunnels are placed are irrelevant to production. For some growers, the table-top was expressed as the only way forward in the future because it led to a 40% productivity gain. Others were less convinced that all strawberry production would be table-top in five years time, primarily because the consumer would still demand soil-grown produce. Higher yield comes from the controlled conditions. The disease risk is easier to manage as the growing medium is more sterile than can be achieved with fumigation of the existing soil underneath the polytunnel. Strawberries are in the optimum place within the tunnel to maximise fruiting, for example, being away from draughts that occur at ground level. Irrigation is also more effective and efficient. More effort can then be placed by plant breeders into fruiting qualities of varieties. Table-top grown fruit is far easier to pick so that there would be no way back once developed. As with most applications of technology, table-top growing is more capital intensive, which at around £60,000/ha is more than three times as expensive as the outlay required for standard polytunnels.

(ii) Community Impact

Growers were conscious of the fact that their activities influenced the lives of those in rural communities. Positive impacts were frequently articulated as benefiting the local rural economy, places where little other economic activity would exist. For example, village stores were used by the seasonal workforce and effectively kept viable, whilst a significant economic benefit to Herefordshire landowners was the renting out of fields for soft fruit production under polytunnels. Growers were firmly of the opinion that the vast majority (90% was quoted) of local people had no view on polytunnels. In contrast, protestors were a vociferous, but powerful few who could effectively be counted on one hand. This was based largely on encounters at meetings spawned by the planning process, little direct confrontation with protestors having been experienced, either verbally or through acts of vandalism. Protestors were said to have the time and resources to put into 'anti' campaign websites whereas growers did not.

Many growers emphasized the importance of good relations with neighbours, such as ensuring no early morning traffic and sensitive siting and screening of the tunnels. Indeed, care over siting polytunnels was articulated as the main way to reduce conflict, in the eyes of growers. In some cases, a lack of communication with locals in the past had fuelled negativity towards polytunnels. Growers firmly subscribed to the view that this conflict had arisen or been exacerbated due to the lack of a link between the land and 'new' rural residents (stereotyped as well-educated, retired, old people). It was said that, years ago, most local residents worked on local farms and so understood what the use of land entailed, particularly that the countryside was a place of work and not the image displayed on a chocolate box. An influx of newcomers to the countryside meant that, despite their best efforts, such as more frequent road-cleaning, complaints about the activities associated with plasticulture were increasing. Not only this, anything that surfaced as an agriculturally-related problem was instantly connected to polytunnel cultivation. Frustration was evident amongst growers, for example, in relation to volumes of traffic because other forms of cultivation that had previously taken place had generated heavier traffic than existed today (though it was recognised that there are more buses now).

(iii) Workers

Protests against foreign workers by local people were said by growers to be minimal. Those who did voice disquiet were likely to be against anyone moving into the area, regardless of background. People in Herefordshire are not necessarily racist but dislike an influx of any newcomers. Workers from Eastern Europe were said to be highly educated individuals within their own country, representing those with the initiative to work abroad and with the intelligence to command English. Workers were vetted through agencies and competition for the best foreign workers was increasing as the pool of those willing to become pickers was shrinking as Eastern European economies improved. Pickers were increasingly discriminating and wouldn't come unless the accommodation was of a reasonable standard. Supermarkets also checked workers' conditions as

part of their ethical statements. Some concentrations of caravan and campsites were necessary to help with workforce task planning and so that workers could avail themselves of recreational facilities on offer. On some farms, workers were provided with a range of free facilities, including internet access, swimming pool, bar, video games room, TV room and sports facilities. Within these limitations, growers had made efforts to disperse some of the accommodation around their holdings.

It was argued that the large seasonal workforce is of considerable benefit to local shops. They did not swamp small villages as they were bussed into local towns. Transport was provided freely by growers who owned the buses. In-house buses were also used to take workers on sightseeing trips and to tourist attractions (such as theme parks) around the UK. There was virtually no crime reported as committed by these workers. In fact, it was said that there had been far more serious incidents with 'working class' and transient casual labour imported for hop and fruit/vegetable picking in previous periods postwar. Herefordshire people were indeed used to having a large seasonal agricultural workforce in the county over a long historical period. The most serious concern identified by growers was local concern for the safety of workers walking along narrow country lanes (often unaware of the direction of flow of traffic in Britain) from the farm of their employment.

Conditions under the polytunnels were argued to be very pleasant for workers, with shelter from rain and ventilation preventing over-exposure to the sun / heat. Workers could earn more because polytunnels meant that they could work for a full 8-hour shift and pick entirely high-quality produce, as opposed to having to stop work if it rained and then picking off rotten fruits. There were also signs that more thought was being given to pastoral care through the employment of doctors and religious figures who could speak Eastern European languages.

Without doubt, the biggest concern of growers was the potential abolition of the Seasonal Agricultural Workers Scheme (SAWS) by government. This was interpreted as a 'soft target' for government to demonstrate that it was taking action to be tougher on immigration in response to public concern (Farmers Guardian, 2007; Daily Telegraph, 2007). Growers recognised that there had been some abuse of the scheme, as highlighted by undercover media reports into identity and documentation fraud connected to the scheme (Inside Out, 2004). However, the scheme offered at least some regulation (by the Home Office), attracted fit, intelligent people (low demand on services) from Higher Education in their country of origin, ensured workers contributed to tax and National Insurance, and guaranteed a return flow to the workforce (Farmers Guardian, 2007). It had been operated successfully by agencies (such as Concordia) for thirty or more years. Withdrawal of the scheme would not see a rush of unemployed British nationals jumping at the chance to pick fruit, a misconception that government might hold.

(iv) Environment

Growers emphasised the environmental benefits of polytunnels and could think of few disadvantages, and certainly none that had been proven. Fewer pesticides were used, commonly quoted as 50% less, although some growers thought 30-40% less was more realistic. Polytunnels help to reduce food miles and will be an important weapon in maintaining production whilst countering climate change. Organic cultivation can happily be accommodated under polytunnels, where there are positive management advantages. Polytunnel plastics have a lifespan of around three years. This can be extended, especially if protected from UV light by wrapping in black plastic over the winter (Figure 7). For cherries, plastic will last six years as it is rolled back in early summer.



Figure 7: During the winter months, plastic is rolled back and stored within the 'Y' structure of the polytunnel framework. It is wrapped in black plastic to protect it from UV light deterioration and prolong the working life of the plastic.

The dominant environmental problem of polytunnel use in the minds of growers was their appearance in the landscape. Green plastic might reduce the landscape impact, but provide sub-

optimal growing conditions for fruit. Some producers use the cheapest plastic available (clear) to reduce input costs. It was suggested that some people even prefer the high reflectance of clear plastic as it looks more like shimmering water bodies.

(v) Planning

Growers were slightly resentful that planning permission now appeared to be needed for polytunnels, even though they argued that ultimately there was no clear legal requirement for such permission on agricultural structures. They firmly believed that polytunnels were temporary. Some polytunnels that had previously been refused permission in case law had concreted-in posts, unlike the metal hooped types currently used. However, growers were keen to stress that they were 'not afraid' of planning permission and happy to work within its constraints, provided that these constraints had been discussed and clearly defined. Growers desire a mature and measured way to move forward within a planning framework.

A whole-farm approach to planning permission was said to be the best way forward rather than growers having to apply constantly for permission on a field by field basis. The latter would be both expensive and unworkable, although flexibility was a key consideration to allow break in use on particular fields and temporary expansion in any one season without repeated recourse to planning. Three further main worries were:

- the requirement to apply for permission would naturally spawn objection;
- that, based on the Tuesley case, planners would 'zone' farms on a 3-category basis of (i) no tunnels permitted, (ii) tunnels permitted permanently and (iii) rotational tunnels; this was said to be too rigid an approach;
- time conditions that might be attached to any permissions granted, stifling investment.

As planning was restricting the area of tunnels allowed, growers were now looking to use permitted or existing areas more intensively. Fixing the area of polytunnels through planning will increase table-top growing, both as a cause and an effect (the application of technology to facilitate table-top growing requires permanent tunnels).

The anticipated restriction of a two year maximum time limit for the siting of a polytunnel in any one field, taken from Herefordshire Council's now defunct VCoP, was vehemently rejected as unworkable. This, more than anything, was said to demonstrate a lack of understanding of growing by planners. To be viable, most strawberry crops need to be grown in one place for three years, or preferably four where possible. Soils can withstand this and fumigation techniques to reduce disease can also last this long. The two-year period was said to have been 'plucked out of the air'.

Apart from the overwhelming consensus amongst growers about the absurdity of a two-year rotation rule, they were keen to vent their frustration of the planning process in other ways.

- *The lack of clear rules:* The planning process has been clearer in other counties than Herefordshire, especially those where there is a two-tier rather than unitary authority. Those formulating a clear requirement for planning permission for polytunnels have made compliance easier. Growers felt that the process in Herefordshire, where there is one county-level (unitary) authority, has become intensively politicised and unpredictable, dependent upon the situation of Councillors sitting on the planning committee.
- *Planning Committees:* Some growers complained they had worked with the planners on an individual basis to devise solutions, but had been refused permission at the planning committee stage. There was a feeling that certain council members were out to settle personal scores using the power of the planning process (see Hereford Times, 2005).
- *Inconsistency:* Planners were accused of sending out mixed messages in that permission had previously been granted for buildings that were utterly dependent upon plasticulture in various ways, but they were now backtracking on allowing the polytunnels themselves.
- *Time delays:* the time taken to process any application was thought problematic as any deferral about an aspect of the production process, such as workers accommodation, puts it out of synchronisation with a crop still dictated by the seasons.
- *Decision-making:* some planning decisions, such as the refusal to allow waste treatment plants for workers, were regarded as exacerbating poor relations with local residents, in this case by generating more traffic to dispose of human waste.
- *Skewed priorities:* the decision whether or not to allow polytunnels in the planning process was criticised as overly dependent upon views from footpaths rather than views from permanent places of residence.
- *Indecisive action:* the production of a new SPD by Herefordshire Council was said to be an irrelevance, with its likelihood of muddying the water rather than offering a clear way forward.
- *Landscape:* growers questioned how it can be evaluated objectively within the process of determining permission.
- *Innovative circumvention:* with polytunnels treated in a clumsy way by planners, growers would look to invest in other technologies over which planning could never have control, even if they were not as advantageous as polytunnels. In particular, some growers were examining the use of low-level cloches, drawing on the experience of others (such as in areas of the Netherlands) where polytunnels had been refused.
- *Cost:* this was a worry both directly, in terms of the submission of planning applications, conducting environmental impact assessments and subsequent appeals; and indirectly in terms of the time taken to complete the process.

5.2 The Protestors' Perspective

The protestors against polytunnels are arguably more united than are growers, able to contact one another in an informal network. The depth of controversy that polytunnels has sparked in

Herefordshire is indicated by the county being home to three prominent active groups that campaign against the use of polytunnels in horticulture. These are in addition to other local and national groups that have declared an interest in, and issued statements on, polytunnels. The Herefordshire ones are:

- The Campaign for Polytunnel Control (see Section 4.2);
- Arrow Valley Residents' Association (see Section 4.2);
- Wickton Action Group, supported by the Campaign to Protect Rural England (CPRE)
<http://www.cpreherefordshire.org.uk/site/documents/Wickton.pdf>

These groups differ slightly in underlying philosophy and their approach to campaigning against polytunnels. This is mainly a function of the importance of landscape within the range of objections made. For some groups, it was a pillar of their campaign whilst for others it was relatively unimportant compared with disturbance to their lives. However, the basis of objection is founded firmly upon the detrimental impact of polytunnels on the quality of rural life. This is then played out as either expressions of landscape damage to beautiful countryside or as impacting upon personal living conditions. Both these themes come together again as influencing negatively the ability of rural residents to respond, primarily through the loss of economic value of their property assets. Residents therefore experience feelings of entrapment, pinning their hopes on the possibility that polytunnels may one day disappear from outside their doors.

Active protestors realise that they are small in number but are of the firm belief that they represent the vast majority of their neighbours who appear to be inactive. Beyond the fact that any protest will have key actors, a reluctance for widespread engagement is explained as a function of fear. Growers are regarded as powerful and wealthy, with the ability to make life uncomfortable for anyone who protests in what are often small and close-knit communities. Some protestors were able to cite instances where they had suffered indirect retribution for their actions. The British mentality of not wanting to cause a fuss is an additional barrier to taking positive action. Some protestors identify that more people are coming forward and speaking out against polytunnels whilst others remark that some people have run out of stamina, felt helpless, disillusioned and have become withdrawn and depressed. Protestors point to the psychological effects of fighting this cause and note cases where an individual's health has suffered. Local residents involved are usually those who are, by their nature and their action in relocating to the countryside, solitary people. This is said to enhance the damaging psychological effects, especially as the appearance of polytunnels is unpredictable and there are no perceived barriers to it. Protestors reject the hypothesis that the lack of a link between local residents and the land explains the high level of protest in Herefordshire, citing the fact that they know many farmers and families with strong historical connections to land who abhor polytunnels. There were some incomers, but a strong indigenous population still existed.

There was a keen emphasis by protest groups to stress that they are not automatically anti-polytunnel *per se*, but that polytunnels should not be located near to peoples' houses or in protected landscapes. Those most likely to object are those living in close proximity to polytunnels. The efforts of some protestors are assessed as misguided by others, said to be attacking parts of the process that could never be considered in courts of law. Another problem is that people are viewed as not bothered about objecting using the planning system. These reasons offer justification to protestors why more co-ordinated action amongst 'anti' groups is desirable.

(i) Horticultural Justification

As a collective, protestors against polytunnels have relatively little to say about the horticultural sector itself. They have witnessed a rapid expansion of the use of polytunnels since 2001 and this experience is extrapolated into a fear of widespread and largely uncontrolled polytunnel development over the next few years. These fears are exacerbated by an awareness that polytunnel systems are being applied to a variety of crops other than strawberries, including raspberries and blueberries, for which they see growing consumer demand. The area of the countryside under plasticulture tends to be overestimated by protestors compared with the broad indications from official figures and area figures provided by growers, although this is not to deny the very dense concentrations of polytunnels that occur in some specific localities in which protest groups operate. Of major concern is that polytunnels effectively turn a natural process, fruit growing, into an industrial one. The industrialisation of agriculture is known to be most advanced in specific sectors, namely pigs, poultry and glasshouse horticulture (Healey and Ilbery, 1985). All are linked by the common characteristic of occupying a small land area. Polytunnels represent the first visible extension of industrialised agricultural manufacturing type processes out into the wider countryside. Protestors have concerns that this industrialised approach to cultivation uses greater inputs (especially of chemicals and fossil fuels), leads to over-production, generates a host of negative environmental consequences (particularly to water resources, the soil and landscape – see '*Environment*' Section 4.2 (iv) below) and produces an unnatural strawberry (or other fruit) product. For example, protestors remarked upon the fact that strawberries in tunnels could all be white one day and then suddenly red and ripe the next, pointing to the deployment of a chemically induced ripening process in the interests of picker planning. Indeed, as consumers, protestors are highly critical of the end product, regarding the 'industrialised strawberry' as tasteless, full of chemicals and pandering to the whim of people who expect traditionally seasonal produce to be available all year round. They regard this as swimming against the tide of encouraging the consumption of more natural and ethically produced food amongst the public at large.

Some protestors suspect that expansion has been encouraged by the existence of government financial inducements in the form of subsidies for polytunnel growing and point to the existence of an aid scheme. One does indeed exist in the form of the Producer Organisation (Fresh Fruit and

Vegetables) Aid Scheme run by the Rural Payments Agency of Defra. This is available as part of an EU drive from 1996 to ensure that growers are more market-orientated, using producer groups (co-operatives) as the vehicle for delivery. Amongst the aims of this support are to plan production so that it matches demand, concentrate production, reduce production costs and promote a move to environmentally sound practices. The cultivation of soft fruit using polytunnels meets all these conditions and the sector has the structure to implement the Scheme, so it is unsurprising to find that evidence exists for its uptake in Herefordshire. What angers protestors is that the availability of this scheme is not widely known amongst the general public and that it was conceived before the prospect of using polytunnel technology came onto the horizon.

In essence, whilst recognising that growers engage in polytunnel cultivation for advantageous economic reasons, helping to keep fruit farmers in business, this type of cultivation is regarded as socially and environmentally unsustainable. These views are explored over the course of the next sub-sections.

(ii) Community Impact

Protestors are keen to articulate a whole host of ways in which polytunnel cultivation negatively influences the way they live their lives. There was unanimous agreement that polytunnels in close proximity to their properties had devalued them, usually to the extent that they were effectively trapped in unsaleable houses. In accepting that they had no option but to stay put, protestors who lived in close proximity to polytunnels held five main areas of concern.

a) Noise and Disturbance: Plastics culture is said to be accompanied by much noise and disturbance to local residents, especially at extremely unsocial hours. This occurs in relation both to the maintenance of polytunnels themselves and the growing / picking process. Growers are aware of the noise that their activities can generate and say that they avoid late nights and early mornings. However, residents stressed that this did not happen in practice. They identified the picking process in particular as a source of early morning (any time from about 3.00am) noise. Protestors had three rational explanations as to why early morning picking was happening and unlikely to be a discontinued practice. First, starting at 3.00am meant that conditions for workers were better, allowing a full eight-hour picking shift to be completed in the cool of the morning. Workers had been observed 'flaking out' at midday after emerging from polytunnels, clutching bottles of water. This explained why so many empty plastic water bottles resided in hedgerows adjacent to polytunnel fields. Second, early morning picking was necessary to ensure that fruit was not picked when it was too hot as this shortened its subsequent shelf-life. Third, a day's picking had to finish by midday to allow the fruit to be taken to the packing plant and then moved to supermarket distribution centres that evening, ready for delivery onto the supermarket shelves next morning.

The picking process was inevitably a noisy one, lasting from May until October. Workers were bussed in to areas that required picking, with refrigerated lorries (with coolers running) stationed

at the exits of fields waiting to chill the produce. Workers voices could be heard as they shouted to one another, usually above the sound of radios. Dumper trucks, quad bikes, 4x4s and trailers with squeaking metal doors contributed to a crescendo of early morning noise from polytunnels, with one vehicle movement of some description being recorded between every thirty seconds and four minutes. Outside of harvest times, spraying was a noisy activity occurring three to four times per week. Straw bales used for bedding fruit were piled in corners of fields leading to vehicle movements. Due to a simple lack of forethought and consideration, the most common place to locate these apparently was outside the front door of residents' houses. The same was true for portable lavatories (Figure 8). The installation of the polytunnels created an initial burst of noise. A tractor mounted auger was used to plant 'Y' frames into the soil before tubular steel hoops are attached to these stanchions. The bending of hoops was also said to occur on-site. The result was much clanging of steel for seven days a week over many weeks until installation was complete. The expectation that noise could start at any moment after 3.00am led to some residents not being able to sleep even when there was no activity in a polytunnel field on a particular day. Some families were now resigned to spending summer nights camped on the landing of their house with all bedroom doors shut in an attempt to muffle the noise coming from outside.



Figure 8: Portable lavatories were placed on a track near houses rather than within the field meaning that residents had to drive around them to access their properties.

Repeated requests made to those involved in the production process to reduce noise had made no difference to the levels of noise experienced. Measurements had been made by some groups using hired equipment and found to exceed internationally recognised limits. It was estimated that a separation distance between polytunnels and dwellings of 1km was the minimum needed to ensure that noise did not adversely affect residents' lives. Complaining about noise to environmental health officers of Herefordshire Council was said to be futile. Allegedly, they were reluctant to look into the matter and avoid field visits because older officers wanted a 'quiet life' and inexperienced younger officers were nervous about taking legal action against big companies and their lawyers.

b) Dust: Second to noise was the dust created by the operations. These were generated from traffic moving up and down field margins which were devoid of vegetation. Such margins were not there to provide wildlife corridors as growers argued, but rather to facilitate vehicle movements (Figure 9). Once dry, they became dust generators. Dust generated meant that gardens were unusable for relaxation, entertaining or growing summer crops. Washing cannot be dried outside, all window vents have to be closed in summer making houses unbearably hot and pets cannot go outside.



Figure 9: Field margins were argued to be primarily for vehicular access, and rather than act as wildlife corridors, acted as dust generators in the dry summer months.

c) *Traffic*: Polytunnel cultivation was said to increase enormously the volume of traffic. Residents had counted 96 bus movements a day on one country lane, not including agricultural machinery or large articulated lorries. There was frustration that the local authority had done nothing to monitor such vehicular movements. The results were that roads frequently were blocked (two buses meeting each other head-on in a single track lane took a long time to sort out), were covered in mud most of the year (as opposed to just key times with arable cultivation) and suffered damage (either to the surface or the verge). Residents were invariably the ones who had to reverse or take evasive action (Figure 10).



Figure 10: Residents reported the frequent need to take evasive action from large vehicles in small country lanes. Many also complained about the effect on grass verges.

d) *Use of plastic*: Plastic was a noise hazard as it flapped in the wind, ended up in people's gardens (one press report showed a resident with plastic on the roof of his house when it became dislodged in a gale – see Hawes, 2002), littered the countryside and was burnt indiscriminately.

e) *Glare and heat*: The reflectance off the plastic was viewed as blinding. Wafts of heat could be felt coming from the polytunnels, affecting the local micro-climate.

(iii) Workers

Groups protesting were at pains to point out that they objected to the volume of workers that had come to descend on their localities and considered their place of origin or nationality irrelevant. Some forwarded the opinion that the 'racist' line of argument is a deliberate growers' representation of protestors (as anti-foreigner). Workers came invariably from Eastern Europe, though their precise nationality was subject to change. They were housed in large caravan sites, sometimes with a capacity for 1000 workers, for which no planning permission was either necessary or had been granted. A large number of non-English workers roaming around small settlements was regarded as detrimental to the culture of village life, with some local facilities overwhelmed by sheer numbers. Some protestors remarked that it made more sense economically, socially, culturally and environmentally if polytunnels were relocated to Eastern Europe rather than bringing large sections of Eastern European populations to Herefordshire. There was a general awareness of the SAWS scheme, but this was readily dismissed as abused because many workers weren't students, as evidenced by the age of workers (many were said to be in their 50s) and that no courses allowed holidays to last between March and November.

Protest groups were highly critical of workers' conditions. Apart from the heat of working in polytunnels, accommodation of the workforce attracted negative comments. Caravans designed for 4-6 people were said to be overcrowded, housing between 8-12 workers in reality, especially at peak summer harvest. Some workers were housed in restrictive 'pods'. The accommodation was said to be grey and mouldy. The profitability of polytunnel enterprises was regarded as fundamentally based upon this cheap labour from abroad. Workers were being exploited in practice by not being paid as much in their pockets as appeared on audited account sheets. It was widely believed that workers incurred charges for all facilities, including accommodation, transport and leisure activities. Passport retention was also thought to be used as a method of workforce retention. Workforce 'overseers' were reported to patrol fields endlessly, 'whizzing around' on loud quad bikes ensuring that pickers maintained productivity and occasionally threatening local residents.

Views on the conduct of the workforce varied widely. In fields, a common complaint was that workers urinated in hedges because they couldn't be bothered to walk to the nearest portaloos (which were often in a disgusting state anyway) (see Figure 11). Some raided local gardens for fruit, but all had a habit of looking into residents' windows out of curiosity so that some residents described their life as one inside a 'goldfish bowl'. In villages and towns, large groups moving around speaking foreign languages were regarded as threatening to locals, especially to old people, even if their presence was innocent. Some reported petty crime to be rife and to have witnessed personally incidents of shoplifting and pickpocketing.



Figure 11: Workers were reported to prefer using the al fresco lavatory facilities available.

(iv) Environment

For some protest groups, objection to polytunnels on the basis of landscape damage was a cornerstone of their campaign. In landscape terms, rotational tunnels were thought to be a 'disaster' by spreading out landscape damage as a patchwork quilt of plastic (remember that growers disliked rotational tunnels too). Polytunnels may be acceptable in locations where they could be effectively screened, but should never be permitted in areas designated for the protection of high-value landscapes. It was argued that the principle that the country's finest landscapes should be protected from polytunnels had been established in case law from the Brinkman case in the Chichester Harbour AONB (Brinkman Brothers Ltd v Chichester District Council). Tourists were thought to be discouraged from visiting Herefordshire by the existence of polytunnels, although some visitor numbers were said to have been generated out of novelty

value and disbelief when polytunnels were first erected in specific localities. Protestors could not grasp why industrialised production could not occur on industrial estates or old airfields given its feasibility through the advent of table-top growing techniques.

A detrimental impact on wildlife had been observed, particularly a decline in owl species whose hunting territories had been reduced by the covering of plastic and the frequency and scale of vehicle movements. Increases in insect populations infesting properties were postulated as a consequence of a reduction in predation. Wildlife casualties from large vehicles constantly moving up and down country lanes were said to be horrific. One area of specific concern was the importation of bees used for pollination of flowers. They were said to be killed off by spraying with insecticide once pollination was complete to prevent workers from suffering stings. There were objections to the amount of litter generated, both from workers discarding items and agricultural waste, with no-one taking the responsibility of clearing it up. A regular complaint was that runoff from the tunnels caused country lanes with no history of flooding to become submerged. Chemical drift from spraying operations was a particular concern due to their frequency throughout the year (at least twice a week) and the clouds witnessed coming from the tunnels.

(v) Planning

One area of complete agreement between protestors and growers was an expression of the poor track record of planners in dealing with the growth of polytunnels across the countryside. The lack of control over large-scale polytunnels was a source of immense frustration amongst all protest groups, especially when permission was required for small structures in back gardens of dwellings. It was reported that most residents pinned their hopes of getting polytunnels removed on the planning system. Campaign groups against polytunnels were viewed as up against well-funded organisations (NFU, CLA) and rich people (landowners). The legal liabilities of any action meant that no group realistically felt they could take the lead on fighting polytunnels, but that this was something only a local authority could take on board, as in the Waverley case (Hall Hunter Partnership) V (1) First Secretary Of State (2) Waverley Borough Council (3) Tuesley Farm Campaign/Residents Group). Growers know this so therefore attempt to 'string out' legal cases. The profits that growers stand to make if polytunnels are allowed are regarded as still too great to be undermined by the costs of seeking planning permission. A litany of accusations and reports of inaction, inconsistent decision-making and misconduct were expressed against planners.

Protest groups were very keen to demonstrate to planners what life is like living close to polytunnels. All complained that planners refused to make site visits, even occasionally, thereby denying residents the opportunity to at least express their point of view. These were deemed to be vital for the enforcement of planning regulations and particularly in the case of polytunnels where many arguments centred around whether structures had been in place for four years (whereupon a right to permanency can be claimed – the 'Four Year Rule'). An unwillingness to make accurate records of the location of polytunnels had already allowed some polytunnels to be

granted permanent rights of existence, despite repeated objections from residents over the four year period. Some growers were viewed as exploiting this lack of monitoring by conducting works, such as the installation of irrigation pipework, which by virtue of their scale, cost and sophistication clearly treated polytunnels as permanent rather than temporary structures (Figure 12). Even worse, in some cases this had been allowed to happen in a protected landscape area, namely the Wye Valley AONB, amounting in the protestors' eyes to a dereliction of duty by the Council. Most protestors thought that the planners of Herefordshire Council had 'gone out of their way' to sidestep mounting a challenge to the presence of polytunnels.



Figure 12: Extensive works to install irrigation pipes are agricultural operations and require no permission, but were argued to indicate the intended permanency of the tunnels they supply.

Operation of the VCoP devised by Herefordshire Council was regarded as having confused matters, or even providing an excuse for inaction by recommending that polytunnels could remain in any one location for a two-year period. Attention was drawn to the fact that the Countryside Agency (2006) expressed concern that the VCoP undermined the enforcement of an accountable planning process. This has been described more bluntly by protestors as 'a Code of Deception', with a placard stating this viewpoint apparently airbrushed out of a photo when a protest against the

VCoP had been publicised in the Hereford Times. The overwhelming conclusion was that the VCoP had not worked, with some growers just ignoring it due to its voluntary status. The preparation of a SPD was interpreted as the latest excuse for delaying decisive action and to have much the same end result as the former VCoP. Planners were accused of being happy with such systems that worked on paper, regardless of whether they worked in reality.

Further sources of stinging criticism from protestors related to matters grouped around alleged misconduct of Herefordshire Council in relation to polytunnel planning matters. Protestors pointed to an increasing amount of case law ruling against polytunnels, but that planners were choosing to ignore these precedents (the Brinkman ruling in particular). This was viewed as denying the general public participation in a democratic process to have their interests properly taken into account. One reason advanced was that aspects of polytunnel manufacture contributed to the Herefordshire rural economy and that strong enforcement of planning conditions would compromise such business activity. Protestors referred to tangible evidence that Herefordshire Council is ineffectively managed in the shape of the Crookall Report into its conduct in technology and communications projects. Another perceived part of the problem is that Herefordshire Council planners come and go from their jobs. Residents have to live with the polytunnels, whereas planners simply regard dealing with them as a job. There is no continuity over time which then compromises taking action against polytunnels to prevent them gaining immunity from enforcement under the Four Year Rule. Parish councils too can be unduly influenced by supporters of growers.

Protestors have future concerns about:

- The length of planning permission granted for polytunnels;
- Enforcement where permission is not gained or transgressed, and the local authority resources to do so;
- A concern only for environmental standards rather than the quality of life of residents;
- Access to the countryside using the rights of way network (Figure 13);
- How they will be able to extricate themselves from being 'trapped' in low value properties directly adjacent to polytunnels;
- Whether protestors will have the stamina to maintain their fight against polytunnels.



Figure 13: Protestors had further concerns about exercising the right to access the countryside.

5.3 Non-aligned Rural Residents' Perspective

Away from the emotions, frustrations and anecdotes advanced by growers and protestors, views were sought from those living and working in rural communities in close proximity to where polytunnels are located. The intention was to gain an overview of the majority who have not taken direct action or are portrayed as holding 'no view'. People encountered in these places by the research team were asked for their views on polytunnels and particularly how the structures and associated operations impacted, if at all, on their daily lives. Whilst no claims can be made for this being a representative sample, there is also no reason to believe that this selection of rural residents is unusual in its characteristics and opinions. It was noticeable that some rural residents were reluctant to talk initially and wanted to know to whom they were speaking. It emerged that the media in particular had 'twisted words' yet attributed them individuals, which had then caused community tension. There was an anxiety to preserve anonymity, which explains why efforts have been made here to ensure that statements are general and indicative.

(i) Horticultural Justification

That the county of Herefordshire has a rich history of horticultural production was acknowledged by respondents, with its tradition as a large producer of hops and top fruit frequently mentioned. The orchards are still harvested, but there has been decline over the postwar years. They are also in small blocks, unlike the highly concentrated, large-scale areas of plasticulture. Very few people had a detailed knowledge of the production process and why polytunnels were necessary. Some residents have sympathy with farmers who use polytunnels because they acknowledge that growers are trying to earn a living. One respondent remarked that “they are producing strawberries, although it’s not a strawberry as we know it”. This supports the view expressed by Monty don that ‘This is a new brand of fast food – junk fruit’ (Don, 2004). Most thought tunnels were unattractive, but ‘just another method of farming’ supplying a perceived demand artificially generated by supermarkets. One more informed respondent had been on a local farm tour organised through her Gardening Club, explaining her knowledge base. She felt strongly that it was better to have polytunnels than rely on overseas imports, as they reduce food miles. This version of ‘environment’ was considered of greater priority, as no connections were made to other possible environmental effects of polytunnels. Her view was that the visit had given her a greater understanding of what happened on the farms. Apart from this person, most people’s everyday encounters with polytunnels came through the strawberry. Many shoppers felt that the existence of polytunnels was not a factor in their strawberry buying habits. The main factors entering the buying consciousness were price and a seasonal (and therefore culturally imprinted) association of strawberries as a ‘treat’ in the warm weather of the summer months. The only factor of origin raised with strawberry purchasing was a vague notion of Britishness. For some consumers, these were associated with a cheaper price than for imported fruit, whilst others had made a decision that it is better to buy British for a longer period of the year than to have to buy ‘foreign’ strawberries. When pressed, British polytunnels were still viewed as ‘farming’.

Those residents closer to the polytunnels themselves unsurprisingly held stronger views and had adjusted their buying habits accordingly. Some growers were thought to be part of ‘a multi-million pound conglomerate’, to the extent that residents no longer referred to growers by name. As a consequence, they would not purchase supermarket strawberries, choosing to grow their own or only buy those grown from ‘small-scale farms’. Some growers had remarked that local residents took advantage of the situation, evidenced by the curious lack of productivity from plants near footpaths, and had no need to purchase strawberries.

(ii) Community Impact

The overall feeling of those just a few miles away from polytunnels was summed up by one respondent in a market town near to a concentration of polytunnels:

“If you live near to polytunnels it’s an issue, but the majority of people in Herefordshire aren’t bothered. It’s a localised issue”.

The last part of the remark was a recurring theme. Another respondent, located in a small market town that many would regard as a rural settlement, said:

“It’s not a problem round here – might be a problem in rural areas, but then not many people really live there so there aren’t many people to be affected”.

People were aware of polytunnels as an issue of conflict because “we see odd bits in the newspaper here and there”. No-one felt that plasticulture had any adverse influence on tourism, some treating the very suggestion of an association with incredulity. Some local services, such as medical facilities, were judged to be under more pressure than before the influx of the polytunnel workforce, but that growers were taking action to resolve such problems.

In the villages adjacent to the polytunnels themselves, a ‘silent majority’ were considered to be against the polytunnels, estimates varying widely from 50-90%. Only a few individuals were said to be bold enough to attend meetings and speak out. They tend to be those that are more affected (e.g. polytunnels bordering their property). Networked protest groups are also well known (e.g. AVRA, CPRE and CPC). Essentially, it is held that local, typically long-standing, residents are the key objectors, but it is thought that they echo a county-wide feeling of disquiet. Contrary to popular belief, it was thought that a combination of both newcomers and long-standing residents were against the tunnels, with perhaps greatest opposition stemming from the latter. This was thought to be because they had witnessed the change over time and so yearned for a return to the past. Some respondents could recall specific incidents, such as plastic becoming wrapped around their house after a storm, but did not consider such isolated incidents to warrant direct action against polytunnels. Most community residents had had, or were thought to have had, little or no contact with the growers themselves. Interestingly, a lot of ‘myth and hearsay’ was generally acknowledged to exist around the practises of large-scale growers. Some regarded them as ‘greedy’ and ‘opportunistic’. Others asserted that it was those growers with a sense of disregard for the community at large had experienced most objection, with personalities important.

For those not active in protest, but in close proximity to polytunnels, a lack of communication between grower and community were thought to be key root causes of the conflict. Some growers were accused of ‘alienating’ the surrounding community and aggravating an already bad atmosphere by continually challenging the planning process. However, it was noted that some growers were making efforts to engage the local community by holding open days to explain their practices, adopting a less aggressive approach to their operation.

One worry of those living cheek by jowl with polytunnels was the scale of the operation. Remarks included “we worry he [the grower] will take over”; “it’s an industrial scale operation”. A ‘few tunnels’ was thought to be acceptable to most but that some growers had “gone too far with it”. This view had been coloured by the rate of change which was described as ‘dramatic’ and ‘shocking’, with questions raised about the suitability and capacity of villages to absorb “an industrial scale operation” rather than “farming the land in a normal way...like they used to”. There was an acceptance that the jobs created by these horticultural ventures were “not for local people”.

The most commonly mentioned impact on everyday life concerned road-related matters. The deterioration in road condition and lack of repair is seen as one of the main problems by many residents. Some individuals had contacted the Council, only to be met with inaction and a response that they lack the necessary funds. One resident had been involved in a lengthy battle to seek redress for a damaged tyre (even though the amount claimed was very small). Most residents believed that growers ought to be financially responsible for road repairs and improvements. Another major problem flagged up by many residents is the early morning traffic. There were reports of lorry drivers, who speak little or no English, knocking on local doors in the small hours seeking directions. This was indicative of a broader frustration about the illogical geographical placement of some aspects of the soft fruit production process, such as packing plants. The 'narrow and windy' nature of the roads, 'past their best' vehicles (e.g. former public transport buses – Figure 14) and drivers that speak little/no English were thought to be a 'very dangerous' combination. Locals could often recall specific accidents. Views on the volume of traffic were more varied, some stating that it was 'no worse' than before the polytunnels, others identifying early morning and evening as 'pinch points' of congestion with strawberry lorries.



Figure 14: Vehicular movements, especially of 'aged' buses, were reported by residents to have increased. They generated dust too from dried out muddy roads.

Noise pollution was acknowledged as an issue, but was thought only contentious for residents whose properties have boundaries contiguous with tunnels, toilet blocks or workers' accommodation. Noise pollution stems from the plastic blowing in the wind ('it sounds like bellows') or through hoops ('a hooting noise'), rain on the plastic, voices of the workers, the workers' radios, vehicles (especially bleeping as they reverse) and power jet washers. Some residents said that they had become accustomed to this noise, especially in summer months, to the extent that it no longer unduly bothered them. One interviewee failed to understand why residents don't accept noise. He thought that residents had unreasonable expectations of a quiet countryside in a place that had always been a 'working village', not a 'postcard village'.

Some residents acknowledged that farmers had to make a living. It was further recognised that some non-farming businesses have benefited from the growth of polytunnels (e.g. taxi companies). However, a large proportion of local residents felt they received only the disadvantages. There are very limited opportunities for PYO now, which some residents suggested would have been a sweetener. Local residents felt as though they ought to be compensated in some way, perhaps entitled to 'cut price strawberries'.

On the much-aired view of an effect on house prices, one vendor had been attempting to sell their property for two years without success. The presence of polytunnels could not be cited as a direct cause for no sale, but the attractive view had been factored out of the equation of plus points for prospective buyers. Those viewing the property were said to comment on the polytunnels.

(iii) Workers

Those interviewed in towns and villages near polytunnels were generally not aware of any outward signs of animosity towards the foreign workers, but noted that some local residents, particularly within the older generation, could be 'a bit xenophobic'. The multi-cultural mix was seen as a favourable consequence of polytunnels that was becoming increasingly accepted. There had been problems in the past, as illustrated by the fact that some pubs formerly displayed '*No foreign workers allowed here*' signs. Some suggested 'locals' were more trouble. It was asserted that people have moved on now and that this didn't happen any more, at least not overtly. Indeed, foreign workers were thought by many to be integrating well into the community, with events organised, social clubs formed and ethnic shops opening (Figure 15). One trend that people had observed was the increasing numbers of workers who were settling here and starting families. However, it was recognised that not everyone was in favour. Some respondents identified that there was a shifting dynamic in the workforce that is creating permanent immigration, which they feared may 'get out of hand'.



Figure 15: One shop in a Herefordshire village near to a large polytunnel grower had been converted into an outlet selling Eastern European foods. It contributed to the local economy and offered all local people greater choice, but would not exist without the horticultural business.

Overall a positive attitude towards foreign workers prevailed, accompanied by an overriding concern for their welfare that in cases even went to the core of defining national identity. For example, one lady respondent stressed that it was our duty as British citizens to show foreigners that high standards prevail in this country. Almost universally, there was a considerable feeling of sympathy for workers, based on fears of poor treatment and exploitation. Such worries extend from their access to supplies - workers are regularly seen walking long distances with armloads of shopping from budget supermarkets – through to their apparent lack of provision for social time/recreation. There are places to go in the nearby towns (Hereford and Leominster), but questions were raised over the charges levied by growers for transport. Some residents had collected hitch-hikers and established through this opportunity for dialogue with Eastern European workers that they were promised over three times more in salary by recruitment offices in their home countries than they actually earned. There were fears expressed over living conditions, such as rumours of 12 people sharing one caravan. Locals feared that workers lived in poor accommodation and paid too much for it, although there was a perception that standards had improved in recent years (Figure 16). Residents rationalised such fears against the fact that

they ‘keep coming every summer’ and that word of mouth has had sufficient time to spread in source countries if worker treatment was as poor as the rumours suggested. Furthermore, workers were known to be very well educated and thus ought to be able to find alternative work or be more capable of standing up for their rights.



Figure 16: Local residents were concerned about the standard and cost of accommodation for foreign workers, but thought that this had improved in recent years.

The community had mixed opinions on the practice of hitch-hiking, which in cases had become commonplace. Some residents were indifferent, some felt ‘put upon’ and others were quite aggravated. There was also a concern for workers walking in the middle of the road, preventing traffic from passing. This was thought to be out of ignorance, rather than to be deliberate. Locals are instructed by some growers not to pick up the workers. Most residents had noticed a declining trend in hitch-hiking over the last couple of years. Various reasons were speculated, with an assumption that workers are now being provided with transport such as minibuses. One recurrent view was that increasingly workers seem to be obtaining cheap private vehicles from car auctions, mainly due to a rise in families coming over to pick fruit. Some were rumoured to be abandoned in hedgerows at the end of the picking season.

The workers were thought to have been used as scapegoats in local petty crime incidents (e.g. stolen bicycles). Foreign workers were ‘an easy target’. In the main, local residents were unaware

of an increased crime rate, some claiming that any suggestion to this effect was 'media spin'. It was inevitable that some workers are likely to be responsible in cases, but that perceptions of a dramatic rise in the crime rate were unfounded. This was confirmed by contact with the local constabulary who reported that whilst arrests were made of foreign nationals in Herefordshire towns, officers on the beat were seeing more Eastern Europeans making a concerted effort at integration. One interesting point to emerge was that foreign workers were surprised at the 'trivial' issues reported to and dealt with by police in Britain. Despite this, some residents, especially the elderly, may be influenced by an increased 'fear of crime'.

(iv) Environment

As might be expected, there were wide-ranging views over the environmental consequences of polytunnel use in soft fruit growing. It was a widely held view that the polytunnels issue was only something that local people mention and discuss. According to those consulted, no tourists had ever mentioned the polytunnels or asked about them. For example, it was local people who were affected where public rights of way had been partially obstructed by polytunnel developments (Figure 13). There was some expression that wildlife had been displaced from fields of polytunnels, as well as walkers. Nevertheless, two main environmental issues emerged as of importance in discussion with local communities.

First, landscape impacts were a key theme, reflecting a full diversity of views. One respondent stated "I think they're [polytunnels] sculptural and beautiful ... adding interest to the landscape". A more commonly held view was that "I think they're an ugly eyesore personally". These people found it difficult to imagine any other single development that had the capacity to change totally the character and appearance of the rural locality in which they exist. In between these extremes, some inhabitants regarded them as 'not too much of a problem' because they tend to be moved after a few years or 'tucked away', hidden in undulating land so that they are not visible from residential areas. Greater efforts to screen tunnels had been noticed by some. For others, this type of development is too large to be effectively screened, particularly where the ground is undulating. Others still had made a trade-off in their own minds between the negative of being unattractive in the landscape and the positive of reducing food miles, in certain cases adding to the reputation of their town for providing locally-grown produce. Against this, residents had an awareness that some growers imported strawberries from Spain for further processing, thereby undermining any argument of 'reducing food miles'. Occasionally, it was mentioned that a change to using matt green plastic would ameliorate the visual impact of polytunnels. Other residents stated that it would make no difference and that glass would be worse. Most of those asked could, however, understand why people with views of polytunnels, or with them next to their gardens, were unhappy. A significant level of confusion was evident amongst respondents as to whether or not polytunnels in their locality were within the boundaries of the Wye Valley AONB. The overall feeling was summed up by one local who was of the opinion that tunnels are "a blight on the

landscape” and spoilt some of the outlooks, but it didn’t change the fact that “this is still a beautiful place to live”.

A second key theme was the environmental impacts of polytunnel cultivation on water resources. Some of those interviewed referred to the ‘large level of water abstraction’ and ‘effects on river flows’, believing this to be unregulated (this is not the case as the Environment Agency licences abstraction and low river flow cannot be linked directly to a single causal factor). What is not disputed is that rainfall excluded from plans has to be substituted with water from other sources. The water running off from plastic was viewed by many as contributing to localised flooding – some had witnessed rainwater ‘pouring off fields’ and eroding soil (Figure 17). Few growers had installed water inception devices because of the lack of permanency of tunnels. Runoff from the polytunnels mixed with the muddy roads helped drains to become blocked very rapidly.



Figure 17: Residents reported that flooding of lanes with no history of a problem now occurred and that this was attributable to polytunnels.

In addition to these two main themes, passing reference was made to chemical sterilisation of the soil in fields covered with polytunnels. It was known that sterilisation destroyed all living

organisms in the soil and was thought to be routinely conducted before the crop is planted or replanted. Questions were raised about the legality of the chemicals involved.

(v) Planning

It is fair to say that most rural residents consulted were aware that planning controls had some relevance to polytunnels, but they had no real understanding of the process. There was an awareness that public meetings had been held but that they had not been interested enough to attend. However, due to the fact that extensive tracts of polytunnels could be observed today, most residents regarded the planning process, and Herefordshire Council's enforcement of it, 'ineffectual'. Indeed, one interviewee stated directly that he had not become involved because residents' meetings are 'a waste of time' because 'counsellors don't listen to, or act on, local opinion'. Locals mapped out the history of the planning process as it applied to polytunnels with remarkable consistency. According to them, at first, planners took the view that 'we mustn't upset the farmers', insulating farmers from the planning process. This was viewed as allowing abuse of the planning control system. Only when residents began to raise money to fight court cases themselves did the planning authority belatedly intervene. The action they took was viewed as relatively weak, taking the form of encouraging requests for retrospective planning permission rather than a stronger approach of enforcement. The latter had only recently happened because the planners had been propelled into the public eye by high profile legal cases elsewhere in England. The latest view is one that the Council does not have the stomach for legal fights, especially as there is an attendant impression that the planning department has a high turnover of staff and is significantly under-staffed, so 'unable to cope'. In short, a perceived lack of willingness to exercise planning control demonstrated by the Council frustrates many local residents.

6. Towards Conflict Resolution: Conclusions and Recommendations

From the evidence presented using both secondary and primary data sources, it is apparent that the argument over the appearance of polytunnels in the English countryside is a highly complex one. Actors can become involved for a whole host of interest reasons, ranging from the march of global capitalism to a rise in domestic invertebrate populations. In simplistic terms, it has become a dispute between the social and the economic, coloured by differing cultural perspectives whilst exposing the inadequacy of political processes to regulate it. One interviewee summed up the reality of the situation by stating a belief that “you can never please everyone, particularly with an operation of such scale”, concluding pessimistically that there was “truly no way to resolve the conflict”. Another offered the view that “essentially it is a conflict between big business, that wants to maximise its profits without restriction, and local residents who wish to preserve their amenity, quality of life and the value of their homes.” Therefore, at the heart of the matter is the fact that people view the same phenomenon in radically different ways, as illustrated in Figure 18a&b, and have very long paths to follow to approach an understanding of viewpoints diametrically opposed to their own.

It is apposite to note that there have been two high profile recent legal cases concerning the regulation of polytunnel development by the planning process (Tuesley Farm, Surrey and Pennoxstone Court, Herefordshire). In many ways, these landmark judgments should have provided some closure on the matter, and appeared to for a very short period of time before different interpretations again began to unravel the brief moments of clarity achieved. When investigated further by drawing upon expert advice, it appears that confusion has continued for the following reasons.

- A lack of distinction continues to be made between polytunnels and Spanish polytunnels.
- The media both seeks and is used to polarise the issue and raise anxiety.
- The argument has been too complex for the media to interpret, involving a mixture of points of national planning principle and judgments against local policy.
- Interest groups have made selective use of the outcomes established from the Tuesley Farm case, such as whether the verdict is nationally or only locally significant whereas it is both.
- Although established as early as 2002, the Tuesley case, as later supported by the Pennoxstone appeal, demonstrates that Spanish polytunnels are development and require planning permission, but this has not been decisively implemented raising uncertainty and frustration which are the fuel of any dispute.
- That the planning system has to recognise that it has not yet got all the conditions attached to granting planning permission correct at the present time, such as thinking that deflecting polytunnels 30 to 50 metres from a residential boundary is sufficient to meet the concerns of the people living there.



Figure 18a&b: Two contrasting views of polytunnels in the protected landscape of the Wye Valley AONB. Taken from essentially the same point but with low (a) and high (b) elevations and with (b) and without (a) the plastic covering can lead to greatly differing perspectives on the severity of landscape intrusion.

In theory, the planning system should offer a mechanism to reduce the scale of the dispute over polytunnels if operated correctly. All parties can participate in the process and provide evidence to support their views. Openness should characterise this procedure, especially to inform local residents and view them as part of the solution instead as part of the problem. This is something that is only just starting to occur in earnest (see Hereford Times, 2008b) and will be the key to ensuring that the dispute is diffused to a more acceptable level. The next level must be greater grower – resident liaison, as is beginning to occur at Tuesley Farm. Regular information flows which can be correlated directly with observable action emerge as the central tenet of any attempt to resolve the Spanish polytunnel dispute, something which could be greatly facilitated by the formation of a grower – residents partnership. This would then act as a conduit to keep all rural residents informed through open meetings and/or through the regular release of new bulletins. To ignore this need for information will only serve to maintain high levels of distrust, suspicion and misunderstanding. Of course, this is where CRC is ideally placed to play a facilitating role in partnership organisation.

Some commentators observe that rural conflicts tend to ‘run out of steam’ following an active period of protest. For example, the brouhaha over fox-hunting with hounds has been reduced to simmering point by the passing of an act of Parliament banning the activity whilst those practitioners have found scope effectively to continue the pursuit as before, albeit with some modification, with the bounds of the law. With polytunnels, the general view of respondents was that, over time, the community will become increasingly accepting and thus the conflict will slowly dissipate. However, they thought that a stronghold of a few vociferous individuals against polytunnels will probably linger indefinitely. People on all sides of the argument were noticeably weary of the dispute. For some growers, 2007 had been the ‘quietest year yet’ despite the court cases and uncertainty over planning, whilst for other growers the situation was ‘getting worse’. Similarly, some protestors had ‘had enough’ whereas there were those with no option but to continue to fight against polytunnels to recover the quality of their lifestyle prior to polytunnels.

Standing back from the viewpoints presented in Section 5, it is possible to identify eleven underlying drivers of the conflict. All are suggestive of ways, to varying extents, that CRC could act to help resolve conflict, both with polytunnels and with rural contestations more generally.

- **A lack of accurate data:** leaving scope in any conflict for claim and counterclaim.
- **The perpetuation of myth:** even when there is evidence in the public domain, hearsay is recycled by the media and there is reluctance by actors to embrace a constantly evolving factual base. As exemplified by the case of the MRM triple vaccine and links to autism in the world of health, it can become difficult to establish on what basis a claim is made and then shift it out of common acceptance even once proven to be suspect or erroneous.
- **Filtered dialogue and confrontational situations:** describing the situation where most contact between interest groups is filtered by the media, or occurs in the pressure-cooker context of appeals and inquiries. These have typified the main route of communication between the different parties in the polytunnels debate. Open days are recognised as a

way forward to improve information flows, but growers' suspicion of the motives of those attending and a resentment of public accountability have been identified as handicaps by organisations representing farmers (even with the qualification that those in the horticultural sector are quicker to react to public relations needs and market conditions than traditional commodity producers).

- **Lines in the sand:** arguably the single most potent driver of conflict, it refers to situations where boundaries between the acceptable and unacceptable are fuzzy. Conflict is less apparent where clear and decisive action has been taken by a local authority in its approach to dealing with polytunnels. The variable treatment of polytunnels in the planning process seems likely to lead to a displacement effect whereby growers actively seek out areas with a simple planning approach to polytunnels (either with no apparent control or with straightforward application requirements). Locations outside the UK may also be considered to expand production, with consequent losses for the local and UK rural economy, although the British climate is acknowledged as the best for strawberry cultivation (neither too hot nor too cold). The level of controversy will depend upon how concentrated this displacement from Herefordshire is in any one region.
- **A perception that no-one is listening:** a feeling from the protagonists that there are insufficient opportunities to explain personal situations to regulatory officials, especially on their own terms.
- **Representative amalgams:** describing the emergence of groups that claim to represent the dominant view but whose subscription base is largely unknown. In one extreme circumstance documented in this report, resident has been pitted against resident as collective factions posture for the position of 'voice of the village', acting to counter notions of a harmonious and idyllic rural way of life.
- **Absence of arbitration:** where the only mechanism to resolve disputes is immediate recourse to the 'bottom line' of expensive legal action. Most actors welcome the opportunity to express their opinions, so that there can be psychological gains even if action takes longer to achieve. This is beyond the remit of the current planning system, yet is something of an expectation of it. Planning officers talk with both polytunnel growers and polytunnel protestors, though not together.
- **A political game:** encompassing a feeling that the interests of rural communities are less important than taking actions (including no action) that minimise political difficulties. One example from the polytunnels dispute might be the SAWS, which at least offers some modicum of regulation to an imported workforce but which is a high profile and easy target for government to demonstrate to a worried electorate that it is tough on immigration. (See also Hickman (2006) for an account of political polytunnel gamesmanship). People therefore feel small and powerless, outside the scope of a disingenuous political process.
- **Structural futility:** where structures exist for an express purpose but do not deliver in reality. One example encountered was the appearance of polytunnels in the Wye Valley AONB, set up with the specific objective to protect the landscape. Regardless of an individual's cultural conditioning, virtually everyone agrees that polytunnels fail to enhance

landscape beauty. Polytunnels are therefore at odds with this designation, enhancing frustration and disappointment at this contravention amongst those who are most aware of it. It could be advanced that every activity has its price, notwithstanding the rights and tradition of landowners. Whilst compensation is off the policy agenda, management payments, for example, have a reasonable track record of encouraging land use behaviour in line with societal wants provided that the political will is there to implement them.

- **Blocked escape routes:** rather akin to a cornered animal, those who are trapped fight the hardest. At least some of the embitterment suffered by those worst affected could be dissipated. With polytunnels, a small number of rural residents are very severely affected by close proximity to plasticulture and should be offered a way out. After all, this could well be a more cost-effective solution than expensive legal battles and attempts at enforcement.
- **Tangible payback:** in this particular case of fruit from polytunnels, many residents would have been happy with free punnets of strawberries for a few weeks in the summer as compensation for the inconveniences associated with production! This leads to a serious point in that more community involvement in an activity that clearly affects people must be attempted as a way forward. Naturally, not all local people would participate in, say, a strawberry fruit festival, but at least it might make the community part of the production process rather than isolated from it. Tourism spin-offs, if appropriately managed, could also be anticipated as an additional benefit.

The final point in the list above essentially returns us to the notion of a link between rural residents and the land. It was striking, though unsurprising given the small number of producers making extensive use of polytunnels, that growers and residents inhabited entirely separate worlds within the close confines of physical rural space. Gains in the quality of life for a proportion of rural people appear to be achievable through the (re)connection with land. Nevertheless, it is important to realise that this will not make a difference to all in the newly socio-culturally constituted countryside. The research into polytunnels in Herefordshire revealed that some residents, whether long or newly-established, valued solitude. They enjoyed looking at land use, but had no desire to understand it or be part of it. Indeed, a phrase that cropped up with regularity amongst interviewees was that some people had 'bought a view' (especially those in the Wye Valley AONB) and were upset at having 'lost it'. It is this section of the rural population that requires the state to broker a specific set of land use relations on their behalf, but in so doing are vulnerable to variations in political will, priority and the effectiveness of the mechanisms in place to deliver them.

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