

RURAL ECONOMY AND CONNECTIVITY COMMITTEE
SUBMISSION FROM SCOTTISH TENANT FARMERS ASSOCIATION
THE DRAFT CLIMATE CHANGE PLAN (RPP3)

The Scottish Tenant Farmers Association (STFA) welcomes the opportunity to comment on the Scottish Government's Climate Change Plan (CCP). STFA is the only dedicated organisation in Scotland representing tenant farmers the length and breadth of the country and is well aware of the need for farmers to play their part in reducing emissions from agriculture.

Awareness of benefits and practicalities of cost effective climate change mitigation measures.

1. STFA agrees with the Climate Change Plan's ambition to make Scotland among the lowest carbon and most efficient food producers in the world, but would stress that this is best achieved by encouraging farmer buy-in rather than by regulation. In this respect the CCP's emphasis on dissemination of information and advice on climate change mitigation is welcome.
2. STFA is pleased to note that the CCP has recognised the need to work with tenant farmers and crofters to increase understanding of the environmental and economic benefits of low carbon farming. The tenanted sector comprises 24% of agricultural land, most of which is livestock farming in the less favoured areas on the margins of the better arable land and consequently tenant farmers have an important role to play in helping the government achieve its climate change mitigation targets.
3. Although most tenanted land is under secure tenure which encourages tenant farmers to plan for the long term, there is an increasing trend for landowners to rent out land on short-term arrangements which acts as a direct disincentive to invest in soil fertility and soil structure. After all, why would a tenant occupier of land make long-term investments from which he will derive little benefit? This situation is especially acute in the arable sector where much land is rent out on an annual basis or contract farmed. Wind blow on the east coast is an obvious consequence of soil depletion as a result of constant cropping without adequate investment in soil structure. STFA would recommend that the Scottish government examine ways of encouraging a more pragmatic longer-term view of renting out land to conserve it for future generations.

Reduction of emissions from nitrogen fertiliser

4. It must be emphasised that much the fall in emissions from agriculture over the last 25 years is due to less fertiliser being used more efficiently. The advent of precision farming techniques has led to targeted application of fertiliser on arable crops and in the livestock sector reduced numbers of livestock improved use of

grass and use of clovers has led to a decrease in the use of nitrogenous fertilisers.

5. The CCP proposes the introduction of regular soil testing to ensure more efficient use of fertilisers on soils so that by 2020 a third of farmers know their soil pH and by 2030 most farmers will know the nutrient value of their soils and will be implementing best practice in soil management. STFA's view is that, although this is a laudable aim, it should be achieved through the use of incentives rather than regulation, particularly with regard to improved and permanent pastures.
6. Most arable farmers already soil-test on a regular basis in order to get the best return from their land. On the other hand, livestock farmers on more marginal land tend to test their soil less frequently, usually when reseeded grass. STFA considers that the Scottish government should consider re-introducing the post-war subsidy on lime, which came to an end in 1974. Without government intervention there is little incentive to invest in sufficient quantities of lime to raise the pH on deficient soils. Whilst there is not the same need to raise food production today as in the post war era, there is no doubt that more efficient use of nutrients on soils with adequate pH would increase the efficiency of agricultural production as well as contributing towards the mitigation of climate change.
7. While SG's Climate Change Plan focuses on pH testing and increasing leguminous crops to increase the efficiency of applied nitrogen fertilisers, additionally increasing soil organic matter in arable soils will also improve fertiliser efficiency. (See para 5)

Leguminous crops

8. The main leguminous crops grown in Scotland's arable area are peas and beans. Available varieties tend to be bred for the English market and are not particularly suited to the Scottish climate - peas often go flat and are difficult to harvest, while beans are late to harvest - resulting Scotland's pea and bean area typically being only 1% or less of the total cropping area. Scandinavian breeders have earlier maturing varieties of beans suited to a more northern climate, but they are not commonly available in the UK. Inclusion of leguminous crops would be difficult in most parts of Scotland.
9. In addition to their role in fixing nitrogen, increased pea and bean areas could potentially be a source of home grown protein, a commodity which is in short supply in Scotland.

Reducing emissions from red meat and dairy

10. STFA supports the CCP's ambition to encourage improved emissions intensity through genotyping, improving fertility, reducing animal mortality and improving farm management practices. Improved breeding techniques and livestock health as well as reduced animal mortality are all beneficial for livestock farmers. Much has already been accomplished in this field so far on a voluntary basis on which can form a platform for future schemes.
11. The use of feed additives for animal feed is already in use in countries like New Zealand but further research will be needed before implementation in Scotland.
12. STFA considers that a holistic approach should be taken in attempts to reduce emissions from livestock. The use of distillery by-products to feed biomass and anaerobic digester plants is a case in point. Traditionally draff, dark grains and pot ale syrup have been a staple part of livestock diets, especially in the north, the northeast and the west of the country. They are all a valuable and cost effective source of protein and animal feed for the livestock industry, reducing dependency on silage and fertiliser usage – all carbon friendly. Draff and dark grains are now in short supply as distilleries find it more lucrative to use these products to produce energy.
13. Apart from creating a shortage of protein feed for livestock, an unintended consequence of the new biomass and AD industry is the rise in transport costs. Alternative sources of protein, now have to be trucked in to supplement the shortfall in protein feeds. There has been such a rapid growth in distillery biomass plants that vast quantities of timber are being imported from the south to supplement the draff consumed. This is becoming a classic case of robbing “Peter to pay Paul” putting the future of the livestock industry in less favoured areas, especially beef cattle, at risk.
14. STFA proposes that the government conducts a review of the implications of further increase in biomass and AD plants on livestock production in the fragile areas.

Reduction in emissions from the use and storage of manure and slurry.

15. STFA considers that the creation of large-scale anaerobic digesters would only be feasible in intensive livestock areas where there are large numbers of livestock in a small area. The most beneficial use of manures and slurry is, as at present, at farm scale under the control of the individual farmer.
16. Recently, incentives for energy production have encouraged rapid growth in the establishment of anaerobic digesters to process crops grown for this purpose requiring many thousands of hectares to be devoted to non-food production. This has inevitably had a destabilising influence on agriculture, especially in areas of

tenant farming where additional land has become increasingly scarce and expensive in the face of competition from the lucrative market for local AD plants.

17. The profusion of AD plants raises a number of questions. Is there a clear economic and environmental rationale for supporting AD plants? Can the life cycle of emissions of energy crops justify the removal of arable land from food production? Can the growth of non-food crops be morally justified in an age of volatile food security? These questions should be answered before any more land is removed from the food chain.
18. STFA would suggest that, rather than attempting to reintroduce rotational cattle grazing on arable farms a more practical and cost effective way of carbon sequestration is through the use of conservation tillage as outlined in Para 5. An alternative use of cattle to increase fertility in hill grazings would be the re-introduction of the age old practice of transhumance where livestock seasonally move to suitable summer grazings. The lack of fertility and sterility on many hills which have been subjected to the mono-grazing of sheep could be reversed with the re-introduction of summer grazing by cattle with the added benefit of resting in-bye pastures and allowing the production of winter keep. An added benefit would be an increase in the diversity of fauna and flora in the hills.

Improving the carbon content of soil and agricultural land carbon sequestration and expanded woodland/forestry and hedgerows

19. Through the use of farming practices to increase soil carbon (i.e. increase soil organic matter, which is around 58% carbon) Scotland's arable area has significant potential to sequester carbon and mitigate climate change.
20. The key to increasing soil carbon is to add more carbon in the form of organic matter at a rate faster than the soil carbon is being lost through oxidation to the atmosphere as carbon dioxide. Farmers can add organic matter to the soil through adding crop residues and organic manures, and also by growing cover crops which are then incorporated into the soil.
21. The loss of soil carbon to the atmosphere can be reduced by minimising the disturbance of the soil when establishing crops, known in other countries that have adopted the practice as conservation tillage. The greater the disturbance of the topsoil, the greater the loss of soil carbon through oxidation. At one end of the scale ploughing gives the greatest disturbance, at the other end direct drilling results in the least disturbance, and there are a range of practices in between.
22. Arable farmers who use conservation tillage practices are typically able to increase the organic matter levels in their top soils by 2 percentage points or more over a 10 year period (eg increasing organic matter in the top 20cm of the soil from 5% to 7%).

23. To put that level of carbon sequestration into perspective, across the 1,000,000 ha of arable land in Scotland which is in cropping and temporary grass, an annual increase in soil organic matter of only 0.2 percentage points (equating to 2% over 10 years) would be sufficient to mitigate all of the annual 10MtCO₂e emissions from Scottish agriculture.

Benefits of conservation tillage

24. The benefits of conservation tillage are considerable, both to the farmer and the wider environment. In the past, farmers who first adopted conservation tillage did so in an attempt to reduce costs associated with sowing a crop, by reducing labour costs, tractor hours and fuel use through minimising cultivations.

25. By minimising cultivations, conservation tillage reduced the loss of soil carbon to the atmosphere, and as a consequence soil organic matter increased. It is the increase in soil organic matter that brings much wider benefits in addition to cost savings and carbon sequestration.

26. The main benefits of increasing soil organic matter through conservation tillage include:

- a) Improving the capacity of soils to hold nutrients, resulting in reduced requirements for fertilisers including nitrogen, phosphate, and potash;
- b) More stable pH reducing the need to apply lime;
- c) Improved water infiltration rates into soils, reducing run-off and flooding;
- d) Increased ability of soils to retain moisture;
- e) Reduced soil erosion due to protective crop residues remaining on surface;
- f) Increased soil bio-diversity including increased earth worm numbers;
- g) Soils become more resistant to compaction;
- h) Improved environment for wildlife resulting from crop residues remaining on surface instead of being ploughed down.

Difficulties around adopting conservation tillage

27. The benefits of conservation tillage for farmers and the environment may be extensive, but there are some difficulties that could be encountered. These include:

- a) New pest problems to deal with;
- b) A new spectrum of weeds to control;
- c) The need for farmers to invest in new seeding machinery;
- d) A possible need for rotations with greater crop diversity.

While these problems are not inconsiderable, they can be overcome by use of knowledge gained by others who practice conservation tillage.

Awareness

28. Arable farmers in Scotland generally take advice from agronomists regarding cropping and cultivations. If farmers are to adopt conservation tillage practices, the lead will need to come from the agronomists in raising awareness of measures to mitigate climate change.

Forestry and tree planting

29. The Scottish government should explore the potential for increasing the uptake of farm-scale tree and hedgerow planting under new agri-environment schemes, particularly grant aid funding for small scale planting of trees for both amenity and commercial purposes.

30. Plans to increase tree planting should be considered carefully. The work carried out by the Woodland Expansion Advisory Group highlighted the difficulty of finding sufficient land suitable for tree planting which did not conflict with the farming industry. New planting targets should take account of the recommendations of the WEAG.

31. There is a considerable area of badly managed woodland which will only be fit for biomass plants, this cannot represent good value for public money. Proper management of new plantings should be a precondition of grant aid.

32. Forest Enterprise is tasked with making an annual contribution of tree planting. This will inevitably mean the continuation of the FES policy of purchasing farmland for tree planting to pump prime the forestry market by selling semi-mature stands of trees. STFA considers that only very marginal agricultural land should be purchased and any of this land suitable for agricultural production should be returned to agriculture as starter farms for new entrants.

Scottish Tenant Farmers Association
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