The third meeting of the Climate Change Focus Farm at Castlemains included a look at carbon footprinting and an assessment of how the cover crop trials had progressed.

Agrealc is a resource efficiency calculator which can estimate greenhouse gas emissions from different enterprises on the farm. Gillian Reid of SAC Consulting explained to farmers how to use it and a number of farmers expressed an interest to sign up for this.

We also reviewed the cover crop trial that was sown on the 16th of September and looked at different seed mixes including rye, vetch & phacelia and Italian rye grass, vetch and radish.

Nutrient management following the high crop yields from 2015 harvest were discussed and it was concluded that extra P and K would be required to take account of extra crop offtakes.
Cover cropping at Castlemains
How cover crops can benefit your soils and boost yields

Cover crops can boost soil heath, improve soil structure, reduce erosion risk and lead to an improvement in yields. Host Bob Simpson was keen on exploring how cover crops could benefit his arable system at Castlemains.

The cover crop trial was sown on the 16th of September 2015. The method of establishment was by terra disking the stubble and drilling with a conventional power harrow-drill combination. The control was terra disked and left unsown. The trial plots on site consist of two mixtures and a control. These have been replicated on the either side of the field to show the differences in soil type being heavier towards the Castlemains side on the field and lighter to the west side of the field.

The mixtures used were:
- Mixture 1 - Rye 80%, vetch 18% & Phacelia 2%, 100kg/ha,
- Mixture 2 - Italian rye grass 42.8%, Vetch 42.8% & Radish 14.4%. 35kg/ha

Seed was kindly supplied by Dodds of Haddington. Photo shows emergence of radish on 25th September.

During the meeting, the group visited the cover crop trials. A late harvest had delayed the sowing date and coupled with dry soils (though not on the day of the meeting!), this meant the plants were not as well established above ground as hoped. However when the plants were dug up they showed more growth below ground than above which demonstrates beneficial effects on soil structure. The Radish, Rye and Vetch all showed significant root growth.
Using AgRE Calc
Agricultural resource efficiency calculator

AgRE Calc is an agricultural resource efficiency calculator that calculates greenhouse gas emission estimates for the whole farm, per enterprise, and per unit of saleable product. An AgRE Calc assessment allows farm performance to be benchmarked against other similar enterprise types, highlighting scope to implement efficiency and financial savings. Many supermarkets and processors are now asking for a carbon footprint to be done and are offering a premium or better contract terms to farmers that can demonstrate they are efficient. AgRE Calc calculates greenhouse gas emissions from management of the land and crops, livestock, energy and waste. The following enterprises can be entered onto the calculator: beef, sheep, dairy, pigs, poultry, cereals, oilseed rape, potatoes, vegetables and fruit. Sequestration from woodland and renewable energy is also taken into account.

Once the data for each enterprise on the farm has been entered onto the calculator, reports can be generated that can show year on year comparisons for the business, and each enterprise can be benchmarked against other farms with similar enterprises. This highlights areas where perhaps savings can be made if the farm business has higher than average emissions in fertiliser, for example. The year on year tool allows you to see whether changes that have been made to the systems have had a positive or negative impact on the emissions from the business, and generated and financial savings.

If you are interested in having a carbon footprint done for your business as part of the focus farm project, please contact Craig Bothwell or Mary-Jane Lawrie, (0131 6037520).
Meetings are free to attend and all farmers are welcome.

For Castlemains, contact farm facilitator Chris McDonald on 0131 603 7522 or via email at chris.mcdonald@sac.co.uk for more information.

What’s next?
The next meeting will be on “The value of soil organic matter” in spring 2016.

There are nine climate change focus farms in Scotland. Keep up to date with their activities at www.farmingforabetterclimate.org

Nutrient Budgeting

With crop yields for barley, wheat and oilseed rape being above average for the 2015 harvest, Chris McDonald highlighted the importance of nutrient budgeting to take account of the higher crop offtake.

Chris explained the difference that an extra tonne per hectare can have on the phosphate and potash requirements of the crop and the impact that can have on reducing soil indices over time. With straw being baled from a winter wheat crop yielding 10t/ha the crop requirement for phosphate is 78kg/ha and for potash it is 56kg/ha. In comparison to an 11t/ha crop which many could have been achieving during the 2015 harvest the requirement for phosphate is 86kg/ha and for potash it is 62kg/ha. If applying straights the difference in application rates would be 13kg/ha for TSP and 10kg/ha of MOP which financially would result in an additional cost of £7.56 per hectare.

Similar figures were presented for barley and oilseed rape. As the crop yields could not have been predicted until harvest had started some crops would have had a higher offtake than application. The message was to take the higher crop offtake into consideration when nutrient budgeting for crops for 2016 harvest and to replace any phosphate and potash which may not have been applied for 2015 harvest.

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