

SAFFIE

Sustainable Arable Farming
For an Improved Environment



SAFFIE NEWSLETTER AUGUST 2005

Skylark plots and ELS

Following on from the successful research done in Saffie on the benefits of skylark plots, they have been included in the new Defra Entry Level Environmental Stewardship Scheme at 5 points/plot, with two plots per hectare. **ELS option EF8**. This easy-to-manage option, which most arable farmers could include in their ELS application to get 10 of their 30 points/ha, will have excellent benefits for skylarks. Average costs of skylark plots are between £2-3/ha for loss of yield.

Saffie results have shown that 49% more fledglings could be produced each year if skylark plots are put in dense cereal crops like winter wheat and winter barley. Skylarks do not generally nest in the plots but use them for foraging and to access the surrounding crop.

If farmers take up the ELS option for overwintered stubbles, we could see the decline in skylark numbers halted and possibly even reversed. Current estimates



A good skylark plot should have a sparse covering of plants for cover and approximately 50% bare soil.

suggest that skylark populations have declined by 19% in England over the past 10 years, equivalent to a loss of 137,000 territories. In the eastern half of the country, populations are still declining by 2-4% a year.

WHAT'S INSIDE...

- Key pointers for skylark plots
- Managing desirable weeds in crops
- Field margin management
- Next steps



KEY POINTERS FOR SKYLARK PLOTS

Where to put them

- Spaced across winter cereal fields of more than 5ha;
- Avoid fields bounded by trees or next to woods, unless more than 10ha;
- Avoid establishing on headlands;
- Do not connect plots to tramlines;
- Move plots around the farm in normal rotation;
- Keep same number of plots each year for ELS.

How to manage skylark plots

- Turn off/lift up drill during sowing to leave an unsown plot between 16-24m²;
- Apply same fertilisers and pesticides as rest of field, but avoid mechanically weeding between 1 April and harvest;
- Aggressive weeds (black-grass, wild-oats) may be spot treated with a knapsack sprayer;
- If you have uncontrolled resistant black-grass, this may not be a good option for you. A plot full of black-grass is no use to skylarks either.

INCREASING DESIRABLE WEEDS IN CROPS

Recent research on the Farm-scale Evaluation of GM crops has shown that weeds are crucial to farm biodiversity. Weeds provide food through nectar, pollen, vegetation and seeds for invertebrates and farmland birds. However, some arable weeds can have a major impact on crop yields e.g. the aggressive weeds like



black-grass, wild-oats and cleavers. So which weeds should you keep and which should you control to protect yield and crop quality, and how can you manage your herbicide programmes to leave behind the 'good' weeds? In the SAFFIE trials, we are looking at what can be achieved by manipulating herbicide use, dose and cultivation. The effects on yields, weeds and invertebrates are being measured.

Weed groups

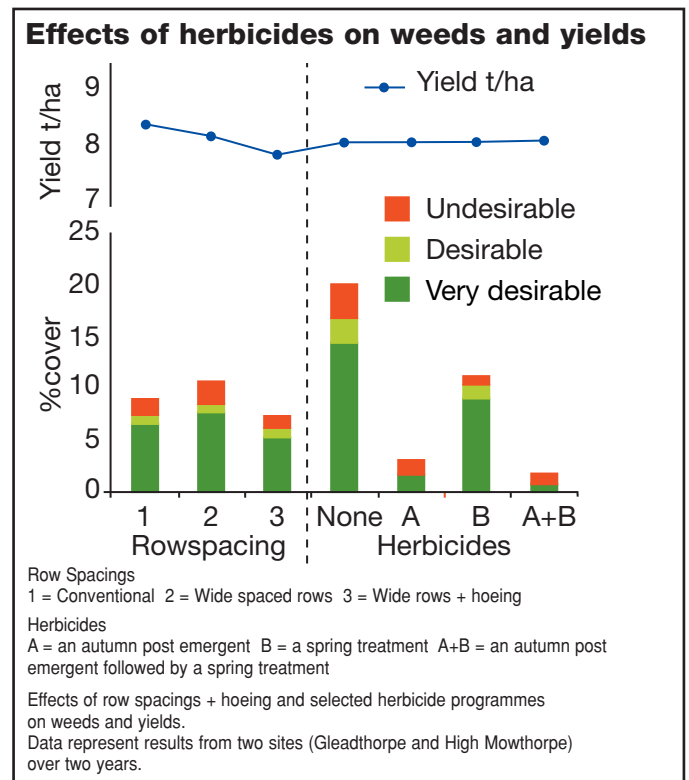
Most weeds damage yields if populations are too high, so herbicides are used to contain populations below the threshold levels that cause yield loss.

Undesirable	Desirable	Very desirable
Black-grass	Fumitory	Annual meadow-grass
Broad-leaved dock	Groundsel	Black-bindweed
Bromes	Mayweeds	Charlock
Cleavers	Mouse-ears	Chickweed
Couch	Pansies	Fat hen
Creeping thistle	Sow-thistle	Polygonums
Crop volunteers		Wild radish
Wild-oats		

Increasing desirability for wildlife

Results so far

After two years of field trials looking at techniques such as wide rows, mechanical weeding and different herbicide programmes, researchers have found that it is possible to leave desirable weeds using different herbicide programmes.



However, results vary between fields and years. Only a small selection of herbicide combinations has been tested with the following effects:

- Using wide rows and mechanical weeding had little effect on weed populations in comparison with herbicides.
- Of the products tested, the spring herbicide alone left the greatest variety of desirable species including meadow-

grasses, polygonums, chickweed and field pansy.

- Single herbicide applications were more likely to leave beneficial weeds than sequences.
- Where there are high populations of undesirable weeds, it is difficult to avoid controlling desirable species.

Results from this work will be consolidated with analysis of 2005 monitoring.

FIELD MARGIN MANAGEMENT

Margin management research is ongoing in SAFFIE with two more years of monitoring to do. This work is very topical as many arable farmers are considering field margins as part of an ELS application. There are a number of options to consider within the new scheme, and a standard 6m buffer strip is worth 400 points/ha of margin. Three margin types are being considered on three research farms within the SAFFIE project:

- Standard tussock grass mix
- Tussock grass + wildflower mix
- Fine grass + wildflower mix

Three annual management treatments have been superimposed on these margins:

- Cutting
- Scarification
- Low-rate graminicide

The effects on vegetation, invertebrates and birds are being evaluated. Distinct plant communities in each margin type are now developing for each management treatment. Scarification is promoting species diversity, especially of unsown species, and a thinner, more mixed sward. The graminicide is encouraging the finer grasses and flower abundance in the tussock grass + flower mix, and increasing the density of the sward in all three mixes. Cutting is benefiting the tussock grass species and species diversity in the two grass + flower mixes.

Inclusion of flower species in the margin mixes is having a significant beneficial effect on the number and

variety of bumblebees and butterflies. The effects of the different management treatments on invertebrates in general are more complicated, although distinct communities are developing in association with different seed mix and management combinations. Many, but not all, invertebrate groups are responding positively to scarification. Bird activity in the margins has also been inconsistent, with a preference for the tussock grass mixes in 2003 and the fine grass mix in 2004.

Overall scarification appears to offer the most benefits for biodiversity from this detailed research study, so this treatment has been selected for a wider evaluation on 26 commercial farms. (Please note – margin scarification is currently not approved for ELS margins without an RPA derogation, as this technique is still under evaluation.)

The two grass and wild flower mix 6m margins are being tested on these farms in England and Scotland. These margins were established in 2003 and the experimental management treatment, scarification, began in spring 2005. We are also looking at the effects of having margins and skylark plots in the same field.



Sponsors perspective

Darren Moorcroft, Farm Manager, RSPB Grange Farm said:

'The RSPB is committed to working with others to find practical, realistic and scientifically-robust solutions for farmland biodiversity. The work undertaken by SAFFIE has shown that such an approach can make a real difference to a wide range of species which depend on the sympathetic management of our countryside'

New HGCA field margins guidelines for ELS

Information from SAFFIE has contributed to a new HGCA guide to field margins which helps growers choose the best options for their farms, balancing practical issues with maximising environmental benefits. The guide is available on the HGCA website www.hgca.com or to order a copy contact HGCA publications 020 7520 3920



Next Steps

We are continuing to evaluate herbicide combinations that can leave desirable weeds. This work will be summarised and reported next spring. We are currently monitoring margins and skylark plots on the 26 commercial farms, and the final year of this work will be in 2006. The more detailed research work on the margins on three farms will also end after harvest 2006.

Results from the SAFFIE project will be made available to farmers as they arise through the SAFFIE website, the Crop Protection Association and HGCA and feature at 2006 demonstration events.

More about SAFFIE

SAFFIE is a five-year joint industry, academic and government collaborative project.

The aim is to enhance biodiversity in and around winter wheat crops by integrating novel habitat management practices within the crop and in non-cropped field margins without compromising yields or profitability. It involves 26 farms (represented by red dots) along with 10 other sites (yellow and blue squares) across England and Scotland. In total, over 900 ha are dedicated to this project until 2006.

Please contact Cath Harris for more details 01733 294229
or cath.h@cropprotection.org.uk

VISITING SITES

Are you interested in visiting a SAFFIE farm site?

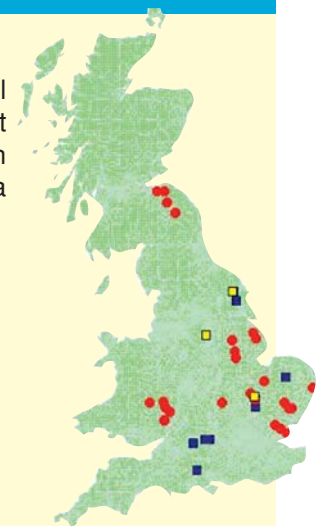
Please contact Sue Ogilvy 01944 738 646, sue.ogilvy@adas.co.uk
For further information on SAFFIE please see www.saffie.info

Project Partners:

ADAS, British Potato Council, British Trust for Ornithology,
Centre for Agri-Environmental Research (University of Reading),
Centre for Ecology and Hydrology, Crop Protection Association with support from AIC members, Central Science Laboratory,
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