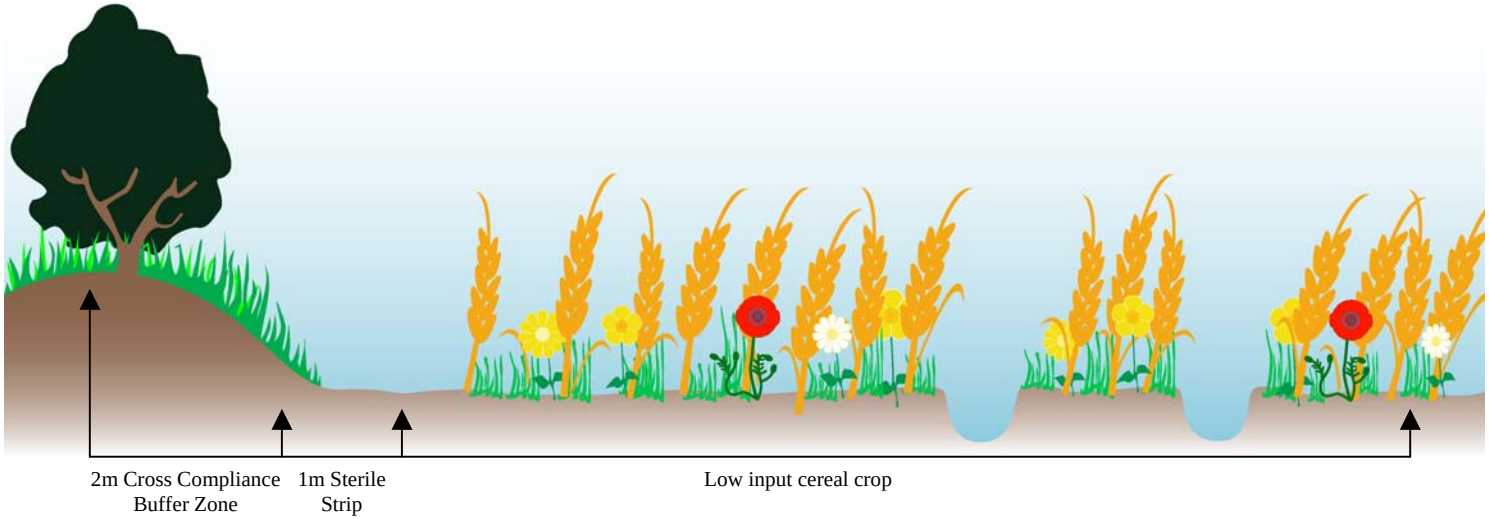
Low Input Spring Cereals

PLANTLIFE

EG4 Cereals for whole crop silage followed by over-wintered stubbles (230 points/ha)
HG7 Low input spring cereal to retain or re-create an arable mosaic (£250/ha)
HF15 Reduced herbicide, cereal crop management preceding over-wintered stubble and a spring crop (£195/ha)
HF18 Reduced herbicide, cereal crop management preceding enhanced set-aside (£140/ha)



Value to plants & other wildlife

- Low input cereals provide a more favourable environment for rare broad-leaved arable plants to germinate and set seed across a whole field rather that just within the outer margin. These plants will have minimal impact on yield as are not competitive to the crop.
- In many situations the seed bank will spread further out into the crop, but generally with conventional cropping it would be rare for the spray boom to have missed any in-field areas for plants to survive.
- Providing conditions of an open crop with restricted inputs programme will encourage rare arable plants to germinate throughout, allowing a whole “corn-field’ flower display.
- Three of these options require spring cropping in the rotation, a spring cultivated plot is better suited to arable plants as it generally receives far less fertiliser and only has one window for herbicide application.
- Over-wintered stubble managed with no inputs allows late flowering plant species to set seed it also provides a favourable environment for arable mosses and liverworts. The weedy stubble is a very important feeding ground for birds and mammals over the winter.

Details of ELS/HLS options (as stated in RDS handbooks)	

EG4: Cereals for whole crop silage followed by over-wintered stubbles (230 points/ha)

- Sow a cereal (but not maize) in the autumn or spring
- Harvest as whole crop silage
- Do not apply insecticides between 15 March and harvest date
- The following herbicides can be applied to control problem grass and broadleaved weeds:
    - Broadleaved weeds (Cleavers) – amidosulfuron (only between 1 February and 31 March)
    - Grass weeds, only the following active ingredients: tri-allate, fenoxaprop-P-ethyl, dicloflop-methyl + fenoxaprop-P-ethyl, tralkoxydim or clodinafop-propargyl.
- There are no restrictions on the use of fungicides or growth regulators
- Retain stubble until at least 15 February in the following year and follow with a spring sown crop
- No more than 5 ha of this option may be included in your application
- This is a rotational option

HG7: Low input spring cereal to retain or re-create an arable mosaic (£250/ha)

- There is potential with this option to design a management programme with your RDS Advisor that will both fit in with the farming system and satisfy the needs the targeted arable plant species.
- The key aspects it should include are:
    - Establishing a spring crop at a specified seed rate of not more than 100 kg/ha
    - Follow a restricted herbicide and fertiliser programme
    - Do not harvest the crop before 31 July
- This option will be particularly favoured in areas where spring crops were traditionally grown but have now declined, because it allows the mosaic of cropping, stubble, fallow and ley to be recreated, which is of great importance to farmland birds and other wildlife.
- The option also provides an opportunity for ley establishment by under sowing with a grass/legume mixture. This is not suitable for arable plants as the under sown crop will compete with the desired species.
- This is a rotational option

HF15: Reduced herbicide, cereal crop management preceding over-wintered stubble and a spring crop (£195/ha)

- This option allows arable plants to flourish and set seed in the crop, and then allows autumn geminating species to establish in the winter stubble. Spring germinating species will benefit from the spring cultivations that follow.
- The management includes cultivating and sowing a cereal crop as usual (either spring or winter, spring barley is the ideal followed by winter barley).
- A restricted herbicide programme is implemented.
- The use of insecticides should be avoided after 15 March to protect the beneficial insects that are attracted to the arable plants. These insects are both a food source for birds and mammals but can also help protect the crop by controlling aphids.
- Fungicides may be applied as required.
- The cereal crop should be harvested without the use of a pre-harvest desiccant.
- A light cultivation is permitted following harvest to prevent increased run-off and erosion. The soil disturbance will also help with the autumn germination of arable plants.
- The stubble should then be maintained without the use of pesticides, fertiliser, manures or lime until the following spring (or at least until 14 February).
- This is a rotational option

	HF18 Reduced herbicide, cereal crop management preceding enhanced set-aside (£140/ha) - This option is similar to HF15 except instead of the stubble being followed by a spring crop it is retained through the following set-aside period. - After the reduced herbicide cereal crop has been harvested there should be no application of pesticide, fertiliser, manures or lime to the stubble until 15 July. Control of undesirable species may be allowed under your RDS officer's guidance. - The stubble cannot be cut or cultivated until 15 July. - Where not overridden by these prescriptions, the general and specific requirements of the set-aside scheme must be followed in full for the area under management.
Location of option on the farm	- If rare arable plants have already been identified on the farm, particularly spring germinating species, the low input crop should be located accordingly. Providing the most benefit to the species identified as often as possible in the rotation. - If rare arable plants have not been identified but a good variation of broadleaved plants occurs it is a good indication rarer species could appear if given the right conditions, and the low input crop should be located in these areas. - Characteristic indicator species of a potentially rich arable flora: on sandy soils - Thyme-leaved Sandwort, Corn Spurrey, Purple Viper's-bugloss, Common Stork's-bill and Loose Silky-bent; on chalky soils - Venus's-looking-glass, Small Toadflax, Fluellen's and Dwarf Spurge. - Locations with scarce species present, such as Prickly Poppy, Dense Silky-bent, Pheasant's-eye or Shepherd's Needle, are especially suitable areas for low input cereals. - Other preferred condition include: • Sunny south facing aspect • Light, well drained, low fertility sandy or chalky soil • No significant weed burden (particular problem species that are pernicious and difficult to control without herbicides e.g. Cleavers, Creeping thistles, Black-grass and Barren brome) or herbicide resistance problems. • Site that have had a long history of cultivation (over 100 years) are more likely to have the rarer species still residing in the seed bank. • Try not to locate options on: land that has received overly heavy applications of herbicides or fertilisers (including manure); fields that have been heavily cropped with legumes or sugar beet; or directly after a break crop as soil fertility will be higher. Volunteers can also be a problem following a non-cereal break crop (beans, OSR, sugar beet. potatoes). • There may be added value to mammals and birds particularly Grey Partridge if these options are sited in fields with existing grass margins, banks and hedgerows as they provide suitable nesting cover.
Working with farming systems	- Many arable plants are winter germinating and would benefit from autumn cultivation. However the use of spring cereals, particularly barley, is highly recommended. This is because winter crops receive far more inputs, for example winter wheat receives on average 60% more nitrogen than spring barley, can be sprayed with herbicides in both autumn and spring, and is normally grown on more productive soils. Therefore a spring barley field is much more likely to allow a species rich community as it is farmed less intensively. - Modern spring cereal varieties are much improved and good yields can be achieved. The lower input costs in this system will

	help to produce an economic margin. - Spring cropping allows for an over wintered stubble, which is of most benefit to arable plants, insects and birds if left undisturbed and un-grazed. (Link to: Over wintered stubbles management sheet) - Choosing fields that are generally not as high yielding would mean that a relatively lower drop in yield would be covered by the Stewardship compensation payment. If a field is generally lower yielding, conditions for arable plants are likely to be good.
Possible problems and how to resolve them	- The options should only be applied to fields with no existing weed burden or resistance problem, to minimise risk. - Grass weeds and Cleavers can be managed with a restricted herbicide programme, therefore should not be allowed to threaten the crops economic viability in view of the reduced seed rate. - Within the rotation of spring and autumn cropping the variation of timing and depth of cultivation will help with weed control. - It is crucial to try to avoid the use of insecticides on spring cereals, or after the 15 March on winter crops, as these 'conservation' crops are a rich source of insect for birds. The use economic thresholds should be implemented. - Your RDS advisor can advise on relevant weed and pest thresholds for different crops. - Phosphorous, potassium and trace elements can be applied as normal. The application of nitrogen should be restricted as much as possible as it favours growth of highly competitive weeds (Black-grass, Cleavers, Wild-oats, Barren brome) at the expense of most uncommon species. - Leaving a sterile strip around the crop edge can help prevent ingress of pernicious weeds, but should be carefully considered as could be damaging to rare species that populate the outer margin.
Value of arable plants to the farmer and what to do with them	- A species rich arable flora needs to be welcomed in a sustainable farming system, it provides the foundations of a bio-diverse farming environment rich in plants, insects, birds and mammals. - The identification of UK Biodiversity Action Plan (BAP) species will help you get into Higher Level Stewardship as this satisfies a primary target on most JCA Target Statements. - Arable plants provide a food source for insects, birds and mammals, they also have strong historic and cultural importance, with species like Cornflower and Corn Marigold being perennial favourites. - Plantlife are keen to record all sites where rare species of arable plants are identified. There is a real need for good baseline information on the distribution and occurrence of less common species coupled with monitoring to determine the effectiveness of all attempts to conserve them. - Plantlife are running an arable plants survey to identify important sites with either single very rare species or good assemblages of more common plants. If you think you have rare arable flora on you farm do contact us as we should be able to arrange a survey: kate.still@plantlife.org.uk Tel: 01722 342741

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