



Specialist Drill + Seed + £5/ac Grant from WUF

Complying with GAEC regulations (Good Agricultural, Environmental Condition) will probably prohibit farmers from leaving maize stubbles over winter in the future. Planning to establish a crop or cover after maize harvest is often not realistic because of autumn soil conditions and problems of late sowing. Under-sowing maize with grass, legumes and other species is, however, becoming a practical option. Grass can also count as an 'ecological focus area' option.



The Wye and Usk Foundation have conducted trials in Herefordshire effectively establishing grass without significant effect on the performance of the maize crop. They have also proved reduction in soil losses and creating winter cover producing up to three tonnes of dry matter/hectare for incorporating as green manure or to provide useful early spring grazing. In Denmark, thousands of hectares are now under-sown and they have done extensive trials on what to sow, how to establish the crop and identified further advantages:

What are the benefits?

- **Qualifies for Ecological Focus Area**
- **Retain soil nutrients (± 40 kg/ha N + K)**
- Reduce soil erosion
- Building fertility
- Building organic matter

- **Winter-Spring grazing opportunity**
>1,500 Ewe grazing days/ha or >300 heifer grazing days
- **Cross compliance** (GAEC 4 + 5)
- Enhancing soil structure – active root mass
- Easier preparation of spring seedbeds

Establishing the Under-Sown Cover Crop

Our own experience, verified by the Danish work identifies the target period for sowing cover crops into maize is from one week after the last herbicide is applied through to the stage when the crop is about knee-high in early July. This coincides with a relatively dry part of the year. Up until now all the work done in Herefordshire has involved either broadcasting (grass) seed directly on to the ground, or broadcasting and harrowing it in with a wire-tined rake. Effective when you have rain afterwards, but less reliable when it is dry. Danish trials suggest that establishment can be greatly enhanced by drilling the seed and consolidating behind the drill. This improves reliability and allows lower seed rates.

Method	Range of Establishment %	Average of all Trials
Broadcast + Grass Rake	8-18%	13%
Disc & Press Wheel Drill	36-64%	50%

Inspired by the Danish experience, local contractor, Roy Price, Field Options and the Wye and Usk Foundation have collaborated to design and build a drill specifically for under-sowing cover crops in maize. For 2016, this service will be subsidised by Wye and Usk Foundation.



Timing

Early sown cover crops will compete with the maize crop, so the cover crop is sown once the maize has already established, but is still short enough to drive through (3-4 leaf). There is also a risk of herbicides affecting the establishing cover crop. In Denmark they primarily use Callisto and MaisTer Herbicides. Callisto did not affect germination of grass when drilled 7 days after spraying. MaisTer affected grass seedlings up to 4 weeks after sowing. Informal trials in north Herefordshire in 2015 suggested that neither Callisto nor Pendimethalin affected the establishment of vigorous Italian Ryegrass.

Our advice is to work closely with your agronomist, control problem perennial weeds prior to growing maize and do not under-sow fields known to have problem weeds which may need late herbicide.

What to Sow?

Most of our experience is with Italian (IRG) and Perennial (PRG) Ryegrass. IRGs are the most vigorous and have the potential to produce optimum biomass yield after the maize has been harvested. Being less vigorous PRG is potentially better suited to earlier sowing and because of the higher number of seeds/kg; it can be sown at very low seed rates. In Denmark they have also tested Cocksfoot and Tall Fescue which were much slower to establish, but provided adequate groundcover through the winter, also Chicory, vigorous and deep rooting. We aim to try mixtures of Vetches x IRG and Alexandrian Clover x IRG. Both these would fix additional N for the following crop and potentially boost early spring growth. **All species options are available if alternatives to IRG & PRG are required.**

Utilising the Cover Crop?

Impressive results can be achieved, but be cautious about planning to harvest the cover crop for silage the following spring. The soil surface can be uneven following maize harvesting operations creating risk of soil contamination. The field will also have significant quantities of maize stalks, unless these are flailed off immediately after harvest. Grazing with sheep or young cattle is probably most appropriate, even in late harvesting seasons, Italian Ryegrass has produced 3 T/ha dry matter by the end of March at about 12 ME and 12% CP. This has the potential to produce >1,500 ewe grazing days or 300 heifer grazing days per hectare.

Who is Operating the Drill?

Working in growing maize crops with inter-row drilling equipment is a job for experienced operators. This service will be provided by Field Options who will organise the drill and seed and coordinate the operation.

The drill operator will be Roy Price of Presteigne. Roy has been involved in drilling and spraying brassica crops and Fodder Beet for many years. He has a tractor set up with appropriate tyres and wheel spacing which will be dedicated to this project for the key drilling period. He also built the drill.

The drill is set up for 6 row or 12 row drill format with standard row spacing or 75 cm (30 inch), but tolerances have been built in to the drill to allow Undersowing in crops sown with an 8 row drill. All maize drilled at 75 cm with GPS guidance should be suitable.

Want to Know More, or How to Book, Contact:

	Who	Phone	Email
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Wye & Usk Foundation	Kate Adams	07766 330 959	kate@wyeuskfoundation.org



The Species Options

No. 1. IRG Option

(7kg/acre)

Italian Ryegrass blend.

- The most vigorous straight grass option with the greatest potential for growth post maize harvest.
- To avoid it competing with the maize, it should not be sown until the maize is at 4 leaf stage.
- Potential for 2.5 T DM/ha by Mid-March.

No. 2. Diploid PRG Option

(6kg/acre)

Diploid Perennial Ryegrass

- More seeds/kg so a lower seed rate. Ideal where good groundcover and nutrient retention is a priority.

No. 3. Tetraploid PRG Option

(8kg/acre)

- 2nd most vigorous grass option.

Experimental Options with Legumes to Boost Fertility & Soil Biology.

The legumes may be more affected by herbicide residues.

No.4. IRG + Winter Vetch

(12kg/acre 6 + 6)

- Very vigorous Italian Ryegrass with winter hardy Hairy Vetch.
- Potential for 3.5 T DM/ha by Mid-March

No. 5. IRG + Common Vetch

(12kg/acre 6 + 6)

- Very vigorous Italian Ryegrass with standard Common Vetch, this can suffer in a hard winter, but the residual N can be mopped up by the companion grass.

No. 6 IRG + Berseem Clover

(10kg/acre 6 + 4)

- Very vigorous Italian Ryegrass with aggressive annual legume, Berseem Clover. This clover is not hardy, but the residual N can be mopped up by the companion grass.

Prices below are per acre; drilling and seed included.

Price is dependant on the species to be sown, the area to be drilled and the round trip the drill has to make for each job. Select from tables below.

Farmers can order a combination of species.

Deduct £5.00/acre from the prices below to give the net price.

This will be subject to VAT and terms below.

No. 1. IRG Option

Cost/acre ex VAT

	10-20 Miles (Avg.15)	21-30 Miles (Avg.25)	31-40 Miles (Avg.35)	41-50 Miles (Avg. 45)	51-60 Miles (Avg. 55)	61-70 Miles (Avg. 55)
10-20 acres	£31.36	£32.36	£33.36	£34.36	£35.36	£36.36
21-40 acres	£30.26	£30.76	£31.26	£31.76	£32.26	£32.76
40-100 acres	£29.19	£29.44	£29.69	£29.94	£30.19	£30.44
>100 acres	£28.66	£28.80	£28.94	£29.07	£29.21	£29.35

No. 2. Diploid PRG Option

Cost/acre ex VAT

	10-20 Miles (Avg.15)	21-30 Miles (Avg.25)	31-40 Miles (Avg.35)	41-50 Miles (Avg. 45)	51-60 Miles (Avg. 55)	61-70 Miles (Avg. 55)
10-20 acres	£29.38	£30.38	£31.38	£32.38	£33.38	£34.38
21-40 acres	£28.33	£28.83	£29.33	£29.83	£30.33	£30.83
40-100 acres	£27.36	£27.61	£27.86	£28.11	£28.36	£28.61
>100 acres	£26.88	£27.02	£27.16	£27.29	£27.43	£27.57

No. 3. Tetraploid PRG Option

Cost/acre ex VAT

	10-20 Miles (Avg.15)	21-30 Miles (Avg.25)	31-40 Miles (Avg.35)	41-50 Miles (Avg. 45)	51-60 Miles (Avg. 55)	61-70 Miles (Avg. 55)
10-20 acres	£33.34	£34.34	£35.34	£36.34	£37.34	£38.34
21-40 acres	£32.19	£32.69	£33.19	£33.69	£34.19	£34.69
40-100 acres	£31.02	£31.27	£31.52	£31.77	£32.02	£32.27
>100 acres	£30.44	£30.58	£30.72	£30.85	£30.99	£31.13

Experimental Options with Legumes to Boosting Fertility & Soil Biology.

No.4. IRG + Winter Vetch (6 + 6)

Cost/acre ex VAT

	10-20 Miles (Avg.15)	21-30 Miles (Avg.25)	31-40 Miles (Avg.35)	41-50 Miles (Avg. 45)	51-60 Miles (Avg. 55)	61-70 Miles (Avg. 55)
10-20 acres	£48.46	£49.46	£50.46	£51.46	£52.46	£53.46
21-40 acres	£47.11	£47.61	£48.11	£48.61	£49.11	£49.61
40-100 acres	£45.54	£45.79	£46.04	£46.29	£46.54	£46.79
>100 acres	£44.76	£44.90	£45.04	£45.17	£45.31	£45.45

No. 6 IRG + Berseem Clover (6 + 4)

Cost/acre ex VAT

	10-20 Miles (Avg.15)	21-30 Miles (Avg.25)	31-40 Miles (Avg.35)	41-50 Miles (Avg. 45)	51-60 Miles (Avg. 55)	61-70 Miles (Avg. 55)
10-20 acres	£40.90	£41.90	£42.90	£43.90	£44.90	£45.90
21-40 acres	£39.65	£40.15	£40.65	£41.15	£41.65	£42.15
40-100 acres	£38.28	£38.53	£38.78	£39.03	£39.28	£39.53
>100 acres	£37.60	£37.74	£37.88	£38.01	£38.15	£38.29

Terms

Minimum area 10 acres

Operating range of service upto 35 miles from Presteigne (LD8) - **Round trip max of 70 miles**

Payment 30 days after date of invoice

Prices are current at the date of publication but may be superseded at any time

Subject to seed being unsold at time of ordering and the capacity of the drilling operation.

Field Options Standard Terms and Conditions apply