



Technical Update 18

The choice of herbicides for vining peas

January 2021

Several products are available for controlling weeds in peas and it is important that growers appreciate the properties of each and that they choose the one most suitable for their conditions, soil type and weed spectrum. These notes, based on the results of PGRO experimental work, are intended to help growers choose wisely. Information on weed species controlled by products with label recommendations for use in peas is on page 5. The ADAS system (1985) for classification of soil type, is used here.

PLEASE READ PRODUCT LABEL RECOMMENDATIONS CAREFULLY

For most pre-emergence pea herbicides there are recommendations that the land is ploughed or deep cultivated before sowing the following crop - please check the label.

Where buffer zones are required near surface waters or ditches these are indicated by *BZ* Category A or B where a LERAP can be applied to category B OR more recently specific product instruction regarding the required BZ.

GENERAL BROAD-LEAVED WEED CONTROL

Experiments have shown benefits of early weed removal and it is best to use pre-emergence materials where possible. Pre-emergence residual herbicides require soil moisture for activity and are suitable for all except late drillings where conditions are often drier. Pre-emergence herbicides are ineffective at economic rates on highly organic soils, and some are damaging on gravelly or very light soil types. They are less effective on cloddy seedbeds and rolling the seedbed to provide a level surface is essential for good weed control with pre-emergence materials.

PERENNIAL BROAD-LEAVED WEEDS

These are not controlled by pre-emergence applications and the effects of post-emergence sprays vary. Tank mixes containing MCPB will give useful control of volunteer oilseed rape, thistles and docks, or the material may be used alone. Perennial weeds may also be eradicated with glyphosate pre-harvest of the preceding wheat or barley crop.

GENERAL WEED CONTROL - PRE-EMERGENCE HERBICIDE PRODUCTS (active ingredients)

Clomazone (various products) LERAP: n/a

A pre-emergence residual herbicide for the control of cleavers and other broad-leaved weeds. As well as cleavers it has good activity on chickweed, shepherd's purse, fools parsley and red dead-nettle, but control of other species can be variable. It is best tank mixed with a pre-emergence herbicide to increase the spectrum of weeds controlled. Clomazone is an effective material if cleavers are predicted to be a problem.

Nirvana (pendimethalin + imazamox) LERAP: B

Nirvana is used pre-emergence and provides wide spectrum residual broad-leaved weed control. Nirvana is crop safe on all commercially available varieties. Seed should be drilled to a depth of 25 mm and fields prone to water logging should be avoided. Maximum persistence is seen with the full permitted dose of 4.5 l/ha and this may allow a 'one-hit' herbicide programme. In vining peas, rates of 2.5 – 3.5 l/ha are advised, according to soil type. However, in practice, the 3.0 l/ha application appears to be a good compromise with the additional option of a further drop to 2.5 l/ha when considering a mix with clomazone to maximise cleaver control. It shows excellent activity against polygonums, black-bindweed, redshank and knotgrass. Charlock is also effectively controlled as is chickweed. Nirvana also gives improved control of early emerging volunteer oilseed rape when compared to pendimethalin alone.

Stallion (pendimethalin + clomazone), Aquatic buffer zone distance 5m –

A broad-spectrum pre-emergence product with useful cleaver activity. Other weeds which are effectively controlled include shepherds' purse, fat hen, deadnettle's, annual mercury, knotgrass, groundsel, black nightshade speedwells and field pansy amongst others.

EAMU'S - Extensions of Authorisation for Minor Use.

There are Extensions of Authorisation for Minor Use (EAMU) for several pendimethalin products (LERAP B). Dual Gold (S-metolachlor, LERAP B) is permitted for use in vining peas between 1st March and 31st May. It will require a partner product. Defy/Spinnaker (prosulfocarb, LERAP B) can also be used pre-emergence. Centurion Max (clethodim), an alternative graminicide which offers improved black grass control in many situations is also available. All products used via EAMU's are done at the grower's own risk.

POST-EMERGENCE HERBICIDES

It may sometimes be necessary to apply a "follow-up" post-emergence herbicide if in a dry spring, pre-emergence treatments have not given adequate control. All treatments (except for MCPB alone) have a "contact" acting component therefore peas must be healthy and leaves well waxed. Pea leaf wax can be tested with crystal violet solution see Technical Update TU36 "Pea leaf wax assessment".

MCPB (Trade names various) LERAP: n/a

This material is specifically used to control thistles and docks and will effectively stunt large volunteer oilseed rape. It only controls a limited range of annual weeds and thus another post-emergence treatment will probably be necessary to deal with them. The susceptibility of the variety to be sprayed should be checked. **Apply before peas are at enclosed bud stage.**

MCPB + bentazone tank-mix LERAP: n/a

This tank-mix is relatively expensive, and the margin of crop safety is less than for the products used alone. However, this mixture can give good weed control including cleavers and large volunteer oilseed rape under a wide range of conditions. Some varieties have been found to damage more easily than others. Crops under stress may be checked. Peas should not be sprayed under conditions of high temperatures or humidity. **Apply a single application from 3 nodes to before flower buds can be found in terminal shoot.**

Bentazone (Basagran SG, Benta 480 and Clayton Baritone) LERAP: n/a

Please note, there have been changes to the Basagran SG label and rates of application and number of applications permitted in peas altered. There is also advisory information regarding water stewardship with the aim of maximising product longevity that should be considered when using any bentazone products. Bentazone can be used alone and is useful for cleaver control but is ineffective on large fat-hen and some other weeds including knotgrass and some speedwells. Please check labels for specific product earliest application timings, usually **from 2 to 3 nodes**, latest applications **before flower buds detectable in terminal shoots.**

VOLUNTEERS

RAPE: This can be a problem several years after cropping. Allowing shed seed to germinate after harvest, before ploughing or cultivating, will help prevent carry over. Pre-emergence Nirvana and Stomp can give useful control. A cheap post-emergence application of MCPB will effectively stunt this weed. Bentazone is also effective but the rape must be present to make use of its contact action. Do not expect control of rape beyond 4 true leaf stage. In vining pea crops, rape is usually only at the flowering stage when harvested and is thus unlikely to shed seed.

POTATOES: Apart from the competition, which can be severe, the main problem likely to occur in vining peas is contamination of the produce with the berries which most (but not all) potato varieties produce.

Ensuring the removal of as much of the potato crop as possible at harvest is an obvious help if vining peas are in the rotation. Working the land so that as many tubers as possible are brought to the surface exposed to vermin and low temperatures again will help reduce numbers. Where potato plants grow above the crop canopy the use of a weed wiper with glyphosate may be considered. Not all varieties produce berries so consulting The AHDB Potato Variety Database may be useful. <http://varieties.ahdb.org.uk/>.

Work at PGRO has shown that pre-emergence applications of Nirvana can delay the development of volunteer potatoes and potentially allow the crop to be harvested before any berries have formed.

There are EAMU's for flumioxazine products Guillotine, Digital and Sumimax (approval numbers 20091115, 20091113 and 20091109 respectively, LERAP B) which have been shown, when used post-emergence, to suppress volunteer potatoes to such a degree that berry formation is prevented. After a satisfactory wax test, sprays of up to 100 mls/ha can be applied from 4-5 nodes but before flower buds are visible. A degree of brown spotting may be seen on the crop which appears to be worse if the crop is wet prior to application or if rain falls shortly after. There is a harvest interval of 42 days specified after application. Flumioxazine will also give some beneficial broad-leaved weed control. See Technical Update 26 for more details.

GRASS WEEDS

The selective post-emergence grass weed killers containing [fluazifop-p-butyl](#), [quizalofop-p-ethyl](#)) and [cycloxydim](#) will not control annual meadow-grass. Some pre-emergence residual herbicides containing pendimethalin offer some control of annual meadow-grass. Dual Gold (EAMU 20140164) also has useful activity against several grasses including annual meadow grass and black-grass. Where graminicides are used in sequence with other post-emergence treatments, care must be taken that the crop has recovered and is undamaged (see labels).

[Laser and others \(cycloxydim\)](#) LERAP: n/a

Laser + Toil adjuvant oil (at 0.5% final spray volume) is a post-emergence treatment for control of wild-oats and other grasses. Optimum timing is at two fully expanded leaves to the end of tillering. The peas should be from 3rd node stage until before crop canopy prevents adequate spray penetration. Test pea leaf wax before application. Minimum harvest interval is 5 weeks.

[Fusilade Max and others \(fluazifop-p-butyl\)](#) LERAP: n/a

Fusilade Max post-emergence is only recommended for peas at rates for control of wild-oats. Applications should be made to peas from 4 node stage before first flower buds are visible, and pea leaf wax should be tested. The wild-oats should be from 2 leaf to fully tillered stages. Minimum harvest interval is 8 weeks. Check product labels for dose rates.

[Leopard 5 EC and others \(quizalofop-p-ethyl\)](#) LERAP : n/a

It is a post-emergence treatment for wild-oats and other grasses. Timing for wild-oats is from two leaves to fully tillered growth stage. It may be applied to peas before the crop canopy closes. Minimum Harvest Interval for vining and combining peas is 5 weeks.

[Centurion Max \(clethodim\)](#) EAMU 0460/17 LERAP: n/a

Approved as an EMAU for control of annual grass weeds and effective on *Poa anna*, applied from 3 leaf and beginning of tillering. Can also be used to control blackgrass, volunteer wheat and barley, applied from 3 leaf and 5 tillers.

BLACK-GRASS: Pre-emergence herbicides for broad-leaved weeds will have little effect on germinating black-grass, but where extensive late germination is expected the most satisfactory control will be obtained by integrating cultural techniques and chemical options e.g. Centurion Max, Fusilade Max (and others), Pilot Ultra or Laser. A different approach will be needed where resistant black-grass occurs and specialist advice should be sought.

CEREALS: Fusilade Max (and others), Leopard 5 EC, and at a slightly higher rate than that for wild-oats for Laser.

COUCH: The best and most economical means of control is by application of one of the various glyphosate products either pre-harvest in the previous cereal crop or in the autumn. Some control of this weed can be achieved by standard autumn cultivations or graminicide treatments.

Laser controls couch and can be used at 2.25 l/ha + Toil as a selective post-emergence treatment in peas, when couch is 15 cm tall (4 - 9 expanded leaves up to end of tillering). Leopard 5 EC from 4 leaves to before jointing.

No other post-emergence graminicides are approved for peas at rates for control of perennial grasses. Fusilade Max (no adjuvant required) These post-emergence graminicides will not give long-term couch control and at the higher rates suggested are usually uneconomic.

BARREN BROME: There are recommendations for control of barren brome using Laser or Fusilade Max (and others) post-emergence.

WEED SUSCEPTIBILITY TO HERBICIDES FOR VINING PEAS

Weed Species Common Name	PRE	PRE	PRE	PRE	PRE	POST	POST	POST	POST	POST	POST
	clomazone	pendimethalin + clomazone	pendimethalin + imazamox	S-metolachlor	bentazone	bentazone + MCPB	MCPB	clethodim	cycloxydim	fluzifop-p-butyl	quizalofop-p-ethyl
Annual meadow-grass	MS	MS	S	S	R	R	R	S	R	R	R
Annual mercury		MS	S								
Barren brome	R	R			R	R	R			S	S
Black-bindweed	MS	MS	S		MS	S	S*				
Black-grass	R	R	MR		R	R	R	S	S	S	S
Black-nightshade	MS	S	MS	MR	S	S	R				
Charlock	MR		S		S	S	S				
Chickweed, common	S	S	S	MS	S	S	R				
Cleavers	S	S	MS~		S	S	R				
Corn marigold					S						
Couch, common	R	R			R	R	R		S	(S)	S
Creeping thistle					MS	MS	S				
Dead-nettle, red	MS	S	S	S	R	R	R				
Dock							S				
Fat-hen	MS	S	S	MS	MS	S	S				
Fool's parsley	S		MR		S	S	R				
Forget-me-not		S			S						
Fumitory, common	MR	MS	S		MS	S	S				
Groundsel	MS	S	MR		MS	S	R				
Hemp-nettle, common	MR				R	MS	S*				
Henbit dead-nettle		S	S		MS						
Knotgrass	MS	S	S		R	MS	R				
Mayweeds	MR	MS	MS	S	S	S	R				
Nettle, small	MS	S	MS		S	S	S				
Orache, common	MS		S		MS	S	MR				
Pale persicaria											
Pansy, field	MR	S	MR		R	MS	S*				
Parsley piert											
Poppy, common	MR		S		MS	MS	S				
Redshank	MS	MS	S	R	S	S	S*				
Scarlet pimpernel			S		S	S	R				
Shepherd's purse	S	S	MR		S	S	S				
Sow-thistle, smooth	MS	S	S	S	MS	MS	S*				
Speedwell, common field	MS	S	S	S	R	R	R				
Volunteer cereals	R	R			R	R	R	S	S	S	S
Volunteer oilseed rape	R		MS~		S	S	MS				
Wild-oats	R	R			R	R	R		S	S	S
Wild radish			MS		S		R				

S Susceptible **MS** Moderately Susceptible **MR** Moderately Resistant **R** Resistant

- * small seedling stage 1 - 2 leaves
- n non label weed but control seen with linuron alone
- ~ best results from 4.5 l/ha application
- () only the wild-oat rate is approved for peas, this will give some suppression

The information in this publication must not be reproduced without the express written permission from the PGRO. Information disseminated by the Processors & Growers Research Organisation is given after the exercise of all possible care in compilation, preparation and issue, but is provided without liability in its application or use.

Processors & Growers Research Organisation

The Research Station, Great North Road, Thornhaugh, Cambridgeshire PE8 6HJ, UK
Chief Executive: Roger Vickers **Tel:** +44 (0)1780 782585 **email:** info@pgro.org **www:** pgro.org
 Company Limited by Guarantee - Registered in London No. 567232. Registered Charity No 284077.
 VAT Reg No 281 7742 37GB