A close-up photograph of a green leaf showing signs of a fungal infection. The leaf is covered with numerous small, yellowish-brown spots, which are characteristic of Stemphylium. Some larger, irregular brown lesions are also visible, particularly towards the bottom right of the frame. The leaf's veins are clearly visible, and the overall appearance is one of significant damage.

Pest, weed and disease charts

Picture of Stemphylium found in North Norfolk



**Pre-drilling and pre-emergence total
weed control**

**Pre-emergence selective
broad-leaved weed control**

**Pre-emergence and
post-emergence grass weed control**

**Post-emergence broad-leaved weed
control**

**Herbicide restrictions and
useful information**

Pest control

Disease control

BBRO Plant Clinic
can be found on our website:
bbro.co.uk/research/plant-clinic

- An aid to the choice of fungicide products approved for use on the UK sugar beet crop following the principles of 'Good Agricultural Practice'.
- This chart is a guide and does not override any statements in manufacturers' technical literature or on product labels.

Product	Max No. Apps.	Max Ind. Dose l or kg ha/yr	Max Total Dose l or kg ha/yr	Active (triazole)	g ai l or kg	Active (strobilurin)	g ai l or kg	Active (other)	g ai l or kg	HI (days)	LERAP	Cost guide £/ha*
Armure ♣	2	0.6	NS	difenoconazole propiconazole	150 150					21	B	£24/ha
Escolta ◆	2	0.35	NS	cyproconazole	160	trifloxystrobin	375			21	B	£26/ha
Fortress	2	0.3	0.4					quinoxifen	500	28	B	£19/ha
Furlong	2	1.0	NS	cyproconazole	80					42	-	£36/ha
Opera	2	1.0	NS	epoxiconazole	50	pyraclostrobin	133			28	B	£28/ha
Priori Xtra	2	0.9	1.8	cyproconazole	80	azoxystrobin	200			36	-	£33/ha

- ♣ Do not apply before BBCH growth stage 40 (crop cover complete: leaves cover 100% of ground).
- ◆ Do not apply before BBCH 31. If a second application is required this must not be made before BBCH 40. Leave a minimum interval of 21 days between applications.


*Cost guide is per application.


HI = Harvest interval (latest date of application) NS = Not stated


Fungicide Restrictions	Restriction
Example products	
Escolta, Opera, Priori Xtra, Furlong	These products contain an active from the QoI cross resistance group. Apply preventatively rather than curatively. Use an ICM strategy incorporating other methods of control, including fungicides with a different mode of action.


The information is based on manufacturers' current recommendations and from British Beet Research Organisation sponsored work.


Product Example	Powdery Mildew	Rust	Ramularia	Cercospora
Armure	✓	✓	✓	✓
Escolta	✓	✓	✓	✓
Fortress	✓	X	X	suppression
Furlong	✓	✓	✓	✓
Opera	✓	✓	✓	✓
Priori Xtra	✓	✓	✓	✓

Stemphylium	When:	Symptoms:	Risk:	Severity:	Advice:
	July to August	Disease starts with small, discrete, irregular yellow spots (0.5-2 mm across). The spots begin to die from the centre forming brown spots 1-3 mm across. Heavily infested leaves die and more yellow spots appear on new leaves. Progressive leaf loss follows in August to September with subsequent yield loss.	Wet summers (high humidity) and other stress factors (e.g. BCN or low pH).	22% to 42% yield loss shown in Dutch trials	Send leaf samples to the Plant Clinic for identification. If stemphylium is confirmed in your crop, assess the extent of the disease. The fungicide Opera (28 day HI) has been shown to have an incidental effect on stemphylium.

Powdery Mildew	When:	Symptoms:	Risk:	Severity:	Advice:
	July to early autumn.	Grey mould on crop, starting on outer leaves.	Mild winters, dry and warm conditions. Low resistance variety.	By far the most yield damaging foliar disease in sugar beet, in the UK. Early infections can reduce yields by up to 20%.	Apply first foliar spray at the end of July/early August as soon as disease infection is seen.

Rust	When:	Symptoms:	Risk:	Severity:	Advice:
	Mid August onwards.	Small orange/brown pustules on leaf surface, later defoliation occurs after frost.	Damp conditions and temperatures between 15-22°C. Low resistance variety.	Up to 10-14% yield reductions.	Treat as soon as disease appears, this is usually mid August to mid September but can be earlier.

Ramularia	When:	Symptoms:	Risk:	Severity:	Advice:
	Mid to late autumn.	Angular leaf spots with central silvery cells and sometimes a dark outer margin on older leaves. Spots are larger than those of cercospora.	Cooler (17-20°C) and wet conditions.	Usually very low.	Rarely worth applying fungicides against ramularia alone, but if it is part of a multiple infection then control is achieved by the use of triazole or triazole plus strobilurin fungicides.

Cercospora leaf spot	When:	Symptoms:	Risk:	Severity:	Advice:
	Mid July to September	Circular spots 3-5mm in diameter with necrotic, tan-grey coloured centres and reddish-brown border. Spots coalesce, leading to severe defoliation.	Warm wet weather, with temperatures above 25°C.	Low at moment, but may become more of a problem with the increase in annual summer temperatures. In other countries yield losses can exceed 50%.	Current fungicide programmes used in the UK are providing adequate control of cercospora.

Pest control 2017

Pest Control - Insecticidal seed treatments												
Product	Active(s)	g a.i/l	Cost Guide £/unit	Target								
				Springtails	Millipedes	Symphylids	Pygmy Beetle	Wireworm	Aphid Vectors	Virus Yellows	Capsids	Leaf Miners
Cruiser Force	thiamethoxam tefluthrin	600 200	£36/unit	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Poncho Beta	clothianidin beta-cyfluthrin	400 53	£34/unit	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★

Good ★★★ Excellent ★★★★

Pest Control - Slugs

Example Products	Active	% w/w	Pellet type	Max total dose kg/ha	Typical dose per application kg/ha	Active applied g/ha	Baiting points /m ²
Allure	metaldehyde	1.5	Dry process hybrid	22.5	5.0	75	40
Appeal	metaldehyde	1.5	Wet process	22.5	4.0	60	60
Gusto 3	metaldehyde	3.0	Wet process	23.0	3.5	105	49
Lynx H	metaldehyde	3.0	Wet process hybrid	23.3	6.0	180	54
Sluux HP	ferric phosphate	2.97	Wet process	28.0	5.0	150	47
Super 3 Mini	metaldehyde	3.0	Dry process	23.0	7.0	210	35

Metaldehyde Stewardship Guidelines - Best Practice Advice

- Use minimum active per ha to avoid drainage and runoff losses.
- Maximum application rate 210g metaldehyde a.i./ha*. For additional protection of water suppliers/BASIS advisers may recommend rates reduced to 160g a.i./ha or less*.
- Maximum total dose from 1st August to 31st December: 210g metaldehyde a.i./ha*. For additional protection of water, suppliers/BASIS advisers may recommend rates reduced to 160g a.i./ha or less*.
- Maximum total dose rate: 700g metaldehyde a.i./ha/calendar year*.
- No pellets to be applied within 6 metres of a watercourse.
- Do not apply when heavy rain is forecast.
- If drains are flowing do not apply metaldehyde based slug pellets.

*From any combination of metaldehyde products, 700g is also the statutory limit.

For further information and advice visit www.getpelletwise.co.uk

- An aid to the choice of insecticide products approved for use on the sugar beet crop following the principles of 'Good Agricultural Practice'.
- This chart is a guide and does not override any statements made in manufacturers' technical literature or on product labels.

Pest Control - Insecticides

Example Products	Max No. Apps.	Max ind Dose	Max Total Dose l or kg ha/yr	Min App Interval (Days)	Active	g ai l or kg	HI	LERAP/ Aquatic buffer zone	Cost guide*	Target	Comments
CythrIn 500EC	2	50ml/ha	100ml/ha	10	cypermethrin	500g/l	14 days	18m ♣	£2/ha	Catterpillar Cutworm	♣ Horizontal boom sprayers must be fitted with three star drift reduction technology for all uses.
Decis	NS	300ml/ha	300ml/ha	NS	deltamethrin	25 g/l	30 days	7m ▲	£7/ha	Flea beetle	Latest timing determined by pest incidence. Likely to control caterpillars but not supplied on label. ▲ 7m non reducible.
Fury 10EW	NS	125ml/ha	250ml/ha	10	zeta-cypermethrin	100 g/l	60 days	A	£5/ha	Cutworm	Apply at egg hatch and repeat no sooner than 10 days later.
Hallmark Zeon	NS	75ml/ha	150ml/ha	NS	lambda-cyhalothrin	100 g/l	56 days	B	£6/ha	Flea beetle Mangold fly larvae Cutworm	
Vydate 10G	1	30g per 100m row	-	-	oxamyl	100 g/kg	At drilling	-	£48/ha	Free living nematodes (docking disorder)	Growers must comply with the Nematicide Application Protocol regarding product stewardship guidance and training requirements. For the safe effective use of Vydate 10G see Dupont UK website for details. When applying nematicides it is advised that growers follow the guidance in the Nematicide Stewardship Programme. For information on Vydate stewardship, and practical advice on usage and calibration please see www.cropprotection.dupont.co.uk for details.

*Cost guide is per application.

Only use approved products, always read the label and comply with the instructions

The information is based on manufacturers' current recommendations and from British Beet Research Organisation sponsored work.

Restrictions on herbicide actives		
Active	Example products*	Restriction
chloridazon	Fiesta T, Pyramin DF, Takron, Volcan Combi,	A maximum total dose of 2.6 kg/ha of chloridazon may only be applied every third year on the same field.
clopyralid	Dow Shield 400, Vivendi 200	In all cases applications should be completed by end of June.
ethofumesate	Betanal maxxPro, Betasana Trio, Efeckt, Ethosat 500, Oblix 500, Oblix MT, Sniper, Teamforce, Torero	A maximum permitted total dose of 1.0 kg/ha of active over a three year period on the same field.
ACCCase inhibitor herbicides	Centurion Max, Falcon, Fusilade Max, Laser, Panarex	Apply only one ACCCase inhibitor herbicide to reduce risk of resistance developing. Only use a second (different) ACCCase inhibitor to control different weeds at different timings.

This chart is a guide and does not override any statements made in manufacturers' technical literature or on product labels.

Using Mineral Oils: Vary the dose according to temperatures below	
Maximum temperature (°C) on the day of spraying	Dose of oil (l/ha)
Up to 14	1.0
14-18	0.75
18-21	0.5
Above 21	no oil recommended
Always check product labels to confirm rates or contact your agronomist.	

* May contain more than one active



Broad leaved weed control products

Product	Formulation	Max No. Apps.	Max Ind. Dose l or kg ha/yr	Max Total Dose l or kg ha/yr	Active	g ai l or kg	Active	g ai l or kg	Active	g ai l or kg	Active	g ai l or kg	LERAP
Beetup Compact SC	SC	NS	2.0	6.0	desmedipham	80	phenmedipham	80					B
Beetup Flo/Betasana SC	SC	NS	3.0	6.0			phenmedipham	160					B
Betanal maxxPro	OD	NS	1.5	4.5	desmedipham	47	phenmedipham	60	ethofumesate	75	lenacil	27	-
Betanal Turbo	EC	NS	1.0	3.0	desmedipham	160	phenmedipham	160					B
Betasana Trio	SC	NS	2.5	7.0	desmedipham	15	phenmedipham	75	ethofumesate	115			-
Bettix Flo	SC	NS	3.0	5.0	metamitron	700							-
Debut/Shiro	WG	4	0.030	-	triflusalifurion-methyl	500							B
Dow Shield 400	SL	NS	0.5	0.75	clopyralid	400							-
Efeckt (Pre-em)/Oblix 500	SC	NS	2.0	2.0					ethofumesate	500			-
Efeckt (Post-em)/Oblix 500	SC	NS	0.6	1.2									-
Ethosat 500	SC	NS	2.0	2.0					ethofumesate	500			-
Fiesta T (Pre-em)	SC	NS	4.1	4.1	chloridazon	360					quinmerac	60	-
Fiesta T (Post-em)	SC	4	1.0	4.0									-
Goltix 70 SC	SC	NS	2.0	5.0	metamitron	700							-
Pyramin DF (Pre-em)	WG	1	4.0	-	chloridazon	650							-
Rifle	SE	NS	1.0	3.0	desmedipham	160	phenmedipham	160					B
Safari Lite WSB	WG	3	0.28	-	triflusalifurion-methyl	54					lenacil	714	B
Sniper	SE	NS	1.3	3.9	desmedipham	50	phenmedipham	150	ethofumesate	200			B
Takron (Pre-em)	SC	1	6.0	6.0	chloridazon	430							-
Teamforce	EC	NS	3.0	9.0			phenmedipham	80	ethofumesate	100			-
Torero/Oblix MT	SC	NS	2.0	6.0	metamitron	350			ethofumesate	150			-
Venzar Flowable (Pre-em)		1	5.0	5.0									-
Venzar Flowable (Post-em) or	SC	1	1.3	1.3	lenacil	440							-
Venzar Flowable (Post-em)		3	0.4	1.3									-
Vivendi 200	SC	NS	1.0	1.5	clopyralid	200							-
Volcan Combi (Pre-em)	SC	1	3.0	3.0	chloridazon	300					metamitron	280	-

SC = Suspension concentrate **EC** = Emulsifiable concentrate **OD** = Oil dispersion

WG = Water dispersible granules **SL** = Soluble concentrate **NS** = Not specified **SE** = Suspo-emulsion

Grass weed and total weed control products					
Product	Formulation	Max No. Apps.	Max Ind. Dose l or kg ha/yr	Active	g ai l or kg
Centurion Max	EC	1	1.0	clethodim	120
Falcon	EC	1	1.5	propaquizafop	100
Fusilade Max	EC	1	3.0	fluzifop-P-butyl	125
Laser	EC	1	2.25	cycloxydim	200
Panarex	EC	1	2.25	quizalofop-P-tefuryl	40
Retro (Pre-em only)	SL	1	4.0	diquat	200
Shark*	ME	1	0.333	carfentrazone-ethyl	60

EC = Emulsifiable concentrate **GR** = Granules **ME** = Micro-emulsion **SL** = Soluble concentrate

NS = Not specified

* One month before planting



Note: Each line in the table represents a new 'situation' and where more than one situation occurs for the same crop it can be sprayed once for each situation. See product labels for further information. These are examples of glyphosate products, other products are available.

Glyphosate

Use of glyphosate is under review. For the latest information we would recommend you check the AHDB website and the European Commissions, FAQs: Glyphosate Fact Sheet. Guidelines on minimising the risk of glyphosate resistance are also available on the AHDB's website.

Product	Formulation	g ai l or kg	Situation	Max No. Apps	Max Ind. Dose l or kg ha/yr	Max Total Dose l or kg ha/yr	Latest Timing		
Roundup Powermax	WDG	720	All edible and non-edible crops (stubble)	NS	2.5	2.5	5 days before the drilling or planting of the following crop.		
					Or 0.75			1.5	2 days before the drilling or planting of the following crop or 6 hours before cultivating.
					2.5				
Roundup Flex	SL	480	All edible and non-edible crops (stubble)	NS	0.75	0.75	Pre-emergence		
					3.75			3.75	5 days before the drilling or planting of the following crop.
					Or 1.0				
Touchdown Quattro	SL	360	All edible and non-edible crops (stubble)	NS	3.75	3.75	Pre-emergence		
					1.0			1.0	5 days before cultivation, drilling or planting of the following crop
					4.0				

SL = Soluble concentrate **NS** = Not specified

The information is based on manufacturers' current recommendations and from British Beet Research Organisation sponsored work.

- An aid to the choice of post-emergence broad-leaved herbicide products approved for use on the UK sugar beet crop following the principles of 'Good Agricultural Practice'.
- This chart is a guide and does not include all available products and does not override any statements made in manufacturers' literature or on product labels.
- Correct choice and timing of the first post-emergence spray is critical. Use a sequence of sprays which applies:
 - 1) Contact activity to control existing weeds.
 - 2) Residual activity to prevent weeds germinating beyond the final spray application.

ONLY USE APPROVED PRODUCTS, ALWAYS READ THE LABEL AND COMPLY WITH THE INSTRUCTIONS

Minimum beet crop growth stage	Maximum weed growth stage	Examples of products/actives available See Herbicide restrictions and useful information chart	Rate per hectare	Cost guide per app. £/ha	Comments	
					Strengths	Weaknesses
No restrictions (after drilling)	Cotyledon	phenmedipham 160g	2.0l to 3.0l	£9 - £13	Charlock	No residual activity, A.M.G., Cleavers, Knotgrass
		phenmedipham 160g + metamitron	1.25l + 1.25l	£28	Mayweed spp, Small nettle, Knotgrass, Pansy, A.M.G.	Cleavers, Black bindweed
		Teamforce + Bettix Flo	1.5l + 1.0l	£32	Mayweed spp, Small nettle, Knotgrass, Pansy, Cleavers	

Minimum beet crop growth stage	Maximum weed growth stage	Examples of products/actives available See Herbicide restrictions and useful information chart	Rate per hectare	Cost guide per app. £/ha	Comments	
					Strengths	Weaknesses
No restrictions (after drilling)	Cotyledon	Betanal Turbo	0.75l	£21	Amaranthus spp, dry and cool weather	No residual activity
		Betanal Turbo + Debut + Venzar Flowable	0.5l+10g+0.2l	£26	Brassica spp. E.g Charlock, Runch, Vol. OSR	
		Betanal Turbo + Torero	0.5l+1.25l	£39	Mayweeds, A.M.G, Polygonum spp. (esp. Knotgrass), Fat-hen. Add oil for use at later growth stages	
		Betasana Trio + oil	1.5 to 2.0l + oil	£21 to £26 + oil	Wide weed spectrum	
		Betanal maxxPro	1.25l	£24	Wide weed spectrum	
		Debut + metamitron + phenmedipham 160g	30g+0.5l+1.5l	£39	Mayweed spp, Nettles, Orache, Fat-hen, Brassica spp, Field pansy	Persistence Black bindweed, Fool's Parsley
		phenmedipham 160g + Fiesta T	1.75l + 1.0l	£28	Common poppy, Speedwell spp, Fool's parsley	Needs Fiesta T pre-em for cleaver control
		phenmedipham 160g + Venzar Flowable	1.8l + 0.4l	£18	Black bindweed, Charlock, Vol. OSR – 1 true leaf	A.M.G, Cleavers, Black nightshade
		phenmedipham 160g + metamitron + oil	1.25l+1.25l+oil	£30 + oil	Field pansy, Knotgrass, Vol. OSR – 1 true leaf	Results can be variable
		Teamforce + Venzar Flowable	1.5l+0.4l	£24	Charlock, Vol. OSR – 1 true leaf	
Expanded cotyledons to just beyond	Expanded cotyledons to just beyond	Betasana Trio + Bettix Flo	1.5l+1.0l	£36	Field pansy, Mayweed spp, Knotgrass, A.M.G, Fat-hen, Small nettle, Vol. OSR	
		Betanal maxxPro + Goltix 70 SC	1.25l+1.0l	£43		
		Sniper + Goltix 70 SC	0.75l + 1.0l	£30		
		Debut + Venzar Flowable + contact herbicide +/- oil	30g+0.4l+ contact herbicide +/-oil	£32 + contact herbicide + oil	Cleavers (1st whorl), Mayweed spp, Small nettle, Brassica spp, Fool's parsley, Black-bindweed, (+ oil knotgrass)	Pansy

Please use this chart in conjunction with the Herbicide restrictions and useful information chart (page 55).

Minimum beet crop growth stage	Maximum weed growth stage	Examples of products/actives available See Herbicide restrictions and useful information chart	Rate per hectare	Cost guide per app. £/ha	Comments	
					Strengths	Weaknesses
1st pair true leaves at least 1cm long	One true leaf	Sniper + Goltix 70 SC + Dow Shield 400	0.75l + 1.0l + 0.25l	£46	Mayweed spp, Creeping thistle, Vol. Potato	
		phenmedipham 160g + Venzar Flowable + oil	1.8l + 0.4l + oil	£20 + oil	Larger Vol. OSR – two true leaves	Cleavers, crop damage can be severe during rapid/soft growth
		phenmedipham 160g + ethofumesate + Debut + Venzar Flowable + metatriton + oil	2.5l + 0.4l + 20g + 0.4l + 0.5l + oil	£50 + oil	Designed as a two spray programme, second application should be timed 14 days after the first. Should the second application be delayed and the weed size increased, the dose of ethofumesate may be increased to 0.8 l/ha and Debut to 30 g/ha.	
1st pair true leaves fully expanded	Up to expanded cotyledons (one true leaf maximum)	phenmedipham 160g + ethofumesate	1.8l + 0.6l	£17	Wide spectrum on small weeds	Beet must not be under stress
		phenmedipham 160g + ethofumesate + Dow Shield 400	1.8l + 0.6l + 0.25l	£33	Mayweed spp, Creeping thistle, Vol. Potato	Beet must not be under stress
		Betasana Trio + Vivendi 200	1.75 + 0.5	£35		
		Betanal maxxPro + Dow Shield 400	1.25l + 0.25l	£40		
		phenmedipham 160g + ethofumesate	2.5l + 1.0l	£25	Fire engine option for contact and residual activity	Do not let Polygonum or Mayweed spp. escape beyond two true leaves
		Betasana Trio + Debut + Venzar Flowable	1.5l + 10g + 0.4l	£35	Very good broad spectrum including activity on Polygonums, large Vol. OSR, Mayweed spp and Field pansy	
1st pair true leaves fully expanded	Larger than one true leaf (two true leaves maximum)	Betanal maxxPro + Debut + Venzar Flowable	1.25l + 10g + 0.3/0.4l	£38/£40	Mayweeds, Brassica spp, small nettle	
		Betanal maxxPro + Debut + oil	1.25l + 30g + oil	£50 + oil	Fool's parsley, Mayweeds, Larger Vol. OSR, Small nettle	
		Betanal maxxPro + Debut + Dow Shield 400	1.25l + 20g + 0.25l	£54	Volunteer potatoes	

FAR Treatments						
Minimum beet crop growth stage	Maximum weed growth stage	Examples of products/actives available See Herbicide restrictions and useful information chart	Rate per hectare	Cost guide per app. £/ha	Comments	
					Strengths	Weaknesses
No restriction		phenmedipham 160g* + ethofumesate + metamiltron 700g (FAR 1st application)	0.5l + 0.2l + 0.5l	£14	Crop safety broad spectrum	
Cotyledon	Em-1cm diameter	phenmedipham 160g* + ethofumesate + metamiltron 700g + oil (FAR repeat applications)	0.5l + 0.2l + 0.5l + 0.5l	£15	Better weed kill in dry conditions	
2 TL		phenmedipham 160g* + ethofumesate + metamiltron 700g + clopyralid 400g/200g	0.5l + 0.2l + 0.5l + 0.125l/0.25l	£22	Wide weed spectrum Vol. potato	Most expensive FAR mixture
		phenmedipham 160g* + ethofumesate + triflusaluron-methyl + lenacil + oil	0.5l + 0.2l + 10g + 0.2l + 0.5l	£18	Good choice for brassica weeds and cleavers on heavy soils	

*Can be replaced by phenmedipham/desmedipham 80g/80 g at 0.5 l/ha or 160g/160g at 0.25 l/ha. Helpful in dry and cool weather.

Please use this chart in conjunction with the Herbicide restrictions and useful information chart (page 55).

Post-emergence broad-leaved weed control 2017

Product example	Golix 70 SC/ Betrix Flo	Fiesta T*	Venzar Flowable*	Ethosat 500* /Efeckl/ Oblix 500	Betasana SC	Betanal Turbo/ Rifle	Beetup Compact SC	Betanal maxxPro	Teamforce	Dow Shield 400 /Mvendi 200●	Debut*/ /Shiro*	Sniper	Betasana Trio
Active ingredient	metamitron	chloridazon +quinmerac	lenacil	ethofumesate	phenmedipham	phenmedipham + desmedipham	phenmedipham + desmedipham	phenmedipham + desmedipham + ethofumesate + lenacil	phenmedipham + ethofumesate	clopyralid	triflusalufuron- methyl	phenmedipham + desmedipham + ethofumesate	ethofumesate + phenmedipham + desmedipham
Rate of Ai per l or kg	700g	360g+60g	440g	500g	160g	160g+160g	80g+80g	60g+47g+75g+27g	80g+100g	400g ●200g	500g	150g+50g+200g	115g+75g+15g
Annual meadow-grass	S	S	R	S	R	MS	MS	S	S	R	NC	MS	S
Black bindweed	MR	S	MS	S	MS	S	S	S	S	MS	MR	S	S
Black nightshade	MR	NC	R	MS	NC	S	S	S	NC	R	MS	S	S
Bugloss	S	NC	S	S	S	S	S	S	S	R	MS	S	S
Charlock	MS	NC	S	S	S	S	S	S	S	R	S	S	S
Chickweed, common	S	S	S	S	S	S	S	S	S	R	S	S	S
Cleavers	R	S	R	S	NC	MS	MS	S	S	R	S	S	S
Corn marigold	S	NC	MS	NC	MS	S	S	S	S	R	S	S	S
Corn spurrey	S	NC	S	S	NC	S	S	S	NC	R	NC	S	S
Cranesbill	NC	NC	NC	NC	NC	MS	MS	S	NC	NC	NC	S	S
Creeping thistle	NC	NC	NC	R	NC	NC	NC	NC	NC	S	MS	NC	NC
Dock, seedling	S	NC	NC	R	NC	NC	NC	NC	NC	R	MS	NC	NC
Fat-hen	S	S	S	S	MS	S	S	S	S	R	MS	MS	S
Field pansy	S	MS	S	MS	MS	S	S	S	S	R	MS	MS	S
Field penny cress	S	NC	MS	S	NC	S	S	S	S	R	NC	S	S
Fool's parsley	S	S	NC	R	NC	MS	MS	NC	NC	R	S	R	R
Forget-me-not	S	NC	NC	NC	MS	S	S	NC	NC	R	MS	S	NC
Fumitory, common	MS	S	S	S	S	S	S	S	S	R	S	S	S
Groundsel	S	S	S	S	S	S	S	S	S	S	S	S	S
Hempnettle	NC	S	S	S	S	S	S	S	S	R	S	NC	NC
Ivy-leaved speedwell	NC	S	S	S	NC	S	S	S	S	R	S	S	NC

Product example	Goltix 70 SC/ Betrix Flo contact- residual	Fiesta T* residual	Venzar Flowable* residual	Ethosat 500* /Efeck/ Oblix 500 contact- residual	Betasana SC contact	Betanal Turbo/ Rifle contact	Beetup Compact SC contact	Betanal maxxPro contact- residual	Teamforce contact- residual	Dow Shield 400 / Vivendi 200● foliar translocated	Debut*/ Shiro* foliar	Sniper contact- residual	Betasana Trio contact- residual
Active ingredient	metamitron	chloridazon +quimmerac	lenacil	ethofumesate	phenmedipham	phenmedipham + desmedipham	phenmedipham + desmedipham	phenmedipham + desmedipham + ethofumesate + lenacil	phenmedipham + ethofumesate	olopyralid	triflusalifuron- methyl	phenmedipham + desmedipham + ethofumesate	ethofumesate + phenmedipham + desmedipham
Rate of Ai per l or kg	700g	360g+60g	440g	500g	160g	160g+160g	80g+80g	60g+47g+75g+27g	80g+100g	400g ●200g	500g	150g+50g+200g	115g+75g+15g
Knotgrass	S	S	S	S	MS	S	S	S	S	R	MS	MS	S
Mayweed spp	S	S	MS	S	MR	S	S	S	S	S	S	MS	S
Orache, common	S	S	S	S	S	S	S	S	S	R	MS	MS	S
Pale persicaria	MS	S	MS	S	S	S	S	S	S	MR	S	S	S
Parsley-piert	NC	NC	NC	NC	NC	NC	NC	NC	NC	R	NC	NC	NC
Poppy, common	S	NC	S	S	S	S	S	NC	NC	R	MS	S	NC
Red dead nettle	S	NC	S	S	NC	S	S	NC	NC	R	S	S	NC
Redshank	MS	S	MS	S	NC	S	S	S	S	MR	S	S	S
Runch	MR	NC	S	S	NC	S	S	S	S	R	MS	S	S
Scarlet pimpernel	MR	NC	S	S	S	S	S	S	S	R	S	S	S
Shepherd's-purse	S	NC	S	S	S	S	S	S	NC	R	NC	S	S
Small nettle	S	S	S	S	NC	S	S	S	S	R	S	MS	NC
Sow thistle	NC	NC	R	NC	NC	NC	NC	NC	NC	S	MS	NC	NC
Speedwell field, common	S	S	S	S	NC	S	S	S	S	R	S	S	S
Sun spurge	S	NC	NC	S	NC	NC	NC	NC	NC	R	S	NC	NC
Volunteer oilseed rape	NC	NC	S	NC	NC	NC	S	S	NC	R	S	MS	S
Volunteer potatoes	NC	NC	NC	NC	NC	NC	NC	NC	NC	S	MS	MS	NC
White campion	NC	NC	NC	NC	NC	NC	NC	NC	NC	R	NC	NC	NC

*When used with phenmedipham

S = Susceptible MS = Moderately susceptible MR = Moderately resistant R = Resistant NC = No claim of control

Please use this chart in conjunction with the Herbicide restrictions and useful information chart (page 55).

Yield effect - One tall weed/m²
can reduce crop yield by 10%!

- An aid to the choice of grass weed herbicide products approved for use on the UK sugar beet crop following the principles of 'Good Agricultural Practice'.
- This chart is a guide and does not override any statements made in manufacturers' technical literature or on product labels.

Example Products	Active(s)	Growth Stage of Crop	Strengths and Weaknesses on Grass weeds										Cost guide £ / ha	Rate Range (per ha)	
			AMG	Black-grass *	Bromes	Common couch	Italian rye-grass *	Onion couch	Perennial rye-grass	Rough meadow grass	Volunteer cereals	Wild oat *			
Selective weed control															
Centurion Max	clethodim	Before row closure	S	S	S	NC	S	NC	NC	NC	NC	S	S	£24	1.0l
Efeckt/Ethosat 500/ Oblix 500	ethofumesate	Pre and post	S	S	NC	NC	NC	NC	NC	NC	NC	NC	MS	£26	2.0l
Falcon	propaquizafop	2 true leaves	MS	S	S	S	S	NC	NC	S	NC	S	S	£13-£28	0.7-1.5l
Fusilade Max	fluazifop-P-butyl	1 true leaf	NC	S	S	S	S	NC	NC	S	NC	S	S	£22-£66	1.0-3.0l
Bettix Flo/ Goltix 70 SC	metamitron	Pre	S	MR	NC	NC	NC	NC	NC	NC	NC	NC	R	■ See note below	
		Post	S	S	NC	NC	NC	NC	NC	NC	NC	GC	S		
Laser (add oil)	cycloxydim	2 true leaves	R	S	S	S	S	S	S	S	S	MR	S	£18-£82	0.5-2.25l
Panarex	quizalofop-P-tefuryl	2 true leaves	NC	S	NC	S	S	S	NC	NC	NC	NC	S	£8-£36	0.5-2.25l

- Product rates differ according to timing and tank mix partners, please refer to product labels

- S** = Susceptible
- MS** = Moderately susceptible
- MR** = Moderately resistant
- R** = Resistant
- NC** = No claim of control
- GC** = Growth check

*** Resistance**

Some strains of annual grasses e.g. Black-grass, Italian rye-grass and Wild oats have developed resistance to some herbicides, leading to poorer control.

Please refer to the weed control section on page 19 for advice on resistant ACCase black-grass situations.

Please use this chart in conjunction with the Herbicide restrictions and useful information chart (page 55).



- An aid to the choice of pre-emergence broad-leaved herbicide products approved for use on the UK sugar beet crop following the principles of 'Good Agricultural Practice'.
- This chart is a guide and does not override any statements made in manufacturers' technical literature or on product labels.

ONLY USE APPROVED PRODUCTS, ALWAYS READ THE LABEL AND COMPLY WITH THE INSTRUCTIONS

Example products	Oblix MT/ Toro	Bettix Flo/ Golfix 70 SC	Pyramin DF	Fiesta T	Efeckt/ Ethosat 500SC/ Oblix 500	Venzar Flowable	Volcan Combi
Active ingredient	ethofumesate +metamitron	metamitron	chloridazon	chloridazon +quinmerac	ethofumesate	lenacil	chloridazon +metamitron
Rate range per/ha	2.0l	*See note below	1.7 - 4.0kg	4.1l	*See note below	1.5 - 5.0l	3.0l
Cost guide / ha	£45 / ha		£21 - £50 / ha	£85 / ha		£35 - £117 / ha	£41 / ha
Annual meadow grass	S	S	S	S	S	S	S
Annual/small nettle	MS	S	S	S	S	MS	S
Black bindweed	MR	MR	S	MS	S	S	S
Black nightshade	MS	MR	S	NC	MS	R	NC
Charlock	S	MS	S	NC	S	S	S
Chickweed, common	MS	S	S	S	S	S	S
Cleavers	MS	R	MR	S	S	R	NC
Common poppy	S	S	S	S	MS	S	S
Corn marigold	MS	S	S	S	NC	S	S
Corn spurrey	MS	S	S	S	S	S	S

* Product rates differ according to timing and tank mix partners, please refer to product labels

S = Susceptible MS = Moderately susceptible MR = Moderately resistant R = Resistant NC = No claim of control

	Oblix MT/ Torero	Bettix Flo/ Goltix 70 SC	Pyramin DF	Efeckt	Efeckt/ Ethosat 500SC/ Oblix 500	Venzar Flowable	Volcan Combi
Creeping thistle	NC	NC	NC	R	NC	NC	NC
Dock, seedling	MS	S	NC	NC	NC	NC	NC
Fat-hen	S	S	S	MS	S	S	S
Field pansy	S	S	MR	MR	MS	R	S
Field penny cress	S	S	S	S	MS	S	S
Field speedwell, common	S	S	S	S	MS	NC	S
Fool's parsley	MR	S	NC	S	R	NC	S
Forget-me-not	S	S	NC	NC	NC	NC	S
Fumitory, common	S	MS	MS	NC	S	S	S
Groundsel	S	S	MS	MS	S	MS	S
Hemp-nettle	S	NC	S	S	S	R	S
Ivy-leaved speedwell	MS	MS	S	S	R	R	S
Knotgrass	S	S	S	MS	S	S	S
Mayweed spp	S	S	S	S	S	S	S

S = Susceptible **MS** = Moderately susceptible **MR** = Moderately resistant

R = Resistant **NC** = No claim of control

Please use this chart in conjunction with the Herbicide restrictions and useful information chart (page 55).

	Oblix MT/ Toreto	Bettix Flo/ Goltix 70 SC	Pyramin DF	Fiesta T	Efeck/ Ethosat 500SC/ Oblix 500	Venzar Flowable	Volcan Combi
Orache, common	S	S	S	MS	S	S	S
Pale persicaria	S	MS	NC	MS	S	S	S
Parsley-piert	NC	NC	NC	NC	NC	NC	S
Red dead nettle	S	MS	S	S	R	MS	NC
Redshank	S	MS	S	MS	S	S	S
Runch	S	MR	NC	MS	S	NC	NC
Scarlet pimpernel	S	MR	MS	R	S	S	NC
Shepherd's-purse	S	S	S	S	S	S	S
Sow thistle	NC	NC	MR	MR	S	S	S
Sun spurge	S	S	MR	MR	NC	NC	NC
Volunteer oilseed rape	NC	S	NC	NC	MS	NC	NC
Volunteer potatoes	NC	NC	NC	NC	NC	NC	NC
White campion	NC	NC	NC	NC	NC	NC	NC

- S** = Susceptible
- MS** = Moderately susceptible
- MR** = Moderately resistant
- R** = Resistant
- NC** = No claim of control

Please use this chart in conjunction with the Herbicide restrictions and useful information chart (page 55).

The information is based on manufacturers' current recommendations and from British Beet Research Organisation sponsored work.



- An aid to the choice of pre-drilling and pre-emergence herbicide products approved for use on the UK sugar beet crop following the principles of 'Good Agricultural Practice'.
- This chart is a guide and does not override any statements made in manufacturers' technical literature or on product labels.

Example products	Active(s)	Weed susceptibility	Cost guide £/ha	Rate range (per ha)
Retro	diquat	S	£14-£28	2.0 to 4.0 l
		MS		
		NC		
		MS-MR		
Shark (Pre-drilling only)	carfentrazone-ethyl	S	£17	0.33
		NC		

*Trials have shown that these weeds will be controlled.

S = Susceptible **MS** = Moderately susceptible **MR** = Moderately resistant **NC** = No claim of control

ONLY USE APPROVED PRODUCTS, ALWAYS READ THE LABEL AND COMPLY WITH THE INSTRUCTIONS

Example products	Active(s)	Weed susceptibility			Cost guide £/ha	Rate range (per ha)	
Roundup Flex	glyphosate 480	S	Annual meadow grass, Black bindweed, Black nightshade, Black-grass, Bromes, Charlock, Chickweed, Cleavers, Common couch, Corn marigold, Creeping thistle, Dock, Fat-hen, Field pansy, Field penny cress, Field speedwell, Forget-me-not, Fumitory, Hemp nettle, Italian-rye-grass, Ivy-leaved speedwell, Knotgrass, Mayweed spp, Onion couch, Orache, Pale persicaria, Parsley piert, Perennial rye-grass, Poppy, Red dead nettle, Redshank, Rough meadow grass, Scarlet pimpernel, Shepherd's-purse, Small nettle, Sow thistle, Volunteer cereals, Volunteer oilseed rape, Volunteer potatoes, Wild oat.			£7-£25	1.0 – 3.75
Roundup Powermax	glyphosate 720	S				£5-£17	0.75 – 2.5
Touchdown Quattro	glyphosate 360	S				£7-£19	1.5 – 4.0

S = Susceptible

Label information

	Retro	Roundup Flex	Roundup Powermax	Shark	Touchdown Quattro
Time before cultivation	-	Annuals 6 hours	Annuals 6 hours	14 days	5 - 14 days
Time before drilling	-	Annuals 24 hours	Annuals 24 hours	4 weeks	5 - 14 days
Latest timing	Before crop emergence	Before crop emergence	Before crop emergence	4 weeks before planting	5 days before drilling
Rainfastness	15 minutes	Annuals 1 - 4 hours	1 - 4 hours annuals	1 hour	6 hours

Please use this chart in conjunction with the Herbicide restrictions and useful information chart (page 55).

The information is based on manufacturers' current recommendations and from British Beet Research Organisation sponsored work.

Weed, Pest and Disease Identification

Broad-Leaved Weeds



Annual mercury



Annual/small nettle



Black bindweed



Black nightshade



Bugloss



Charlock



Chickweed, common



Cleavers



Corn buttercup



Corn chamomile



Corn gromwell



Corn marigold



Corn Spurrey



Cranesbill



Creeping thistle



Dandelion



Dock



Fat hen



Fiddleneck



Field pansy



Field pennycress



Field speedwell, common



Flixweed



Fool's parsley



Forget-me-not



Fumitory



Gallant soldier



Field speedwell



Groundsel



Hempnettle, common



Henbit dead-nettle



Ivy-leaved speedwell



Knotgrass



Many-seeded goosefoot



Maple-seeded goosefoot



Mayweed



Mint



Nipplewort



Orache, common



Pale persicaria



Parsley Piert



Poppy, common



Red dead-nettle



Redroot pigweed



Redshank



Scarlet pimpernel



Shepherd's needle



Shepherd's purse



Smooth sow thistle



Sun spurge



Swinecress



Vetches



Viper's bugloss



Volunteer oilseed rape



Volunteer potato



White campion



White clover



Wild carrot



Wild radish

Weed, Pest and Disease Identification

Grass Weeds



Annual meadow-grass



Black-grass



Brome



Common couch



Rye-grass



Wild oats

Diseases



Cercospora



Downy mildew



Fusarium rot



Powdery mildew



Ramularia



Rhizomania



Rust



Violet root rot



Virus yellows

Pests



Black aphid



Capsid



Cutworm



Field mouse



Flat millipede



Flea beetle



Free living nematode



Green aphid



Leatherjacket



Leaf miner (Mangold fly)



Pygmy beetle



Red spider mite



Silver-Y moth caterpillar



Slug



Spotted snake millipede



Springtail



Symphylid



Thrip



Wireworm



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