

SUMMARY OF DETAILS OF VARIETAL IDENTIFICATION FOR HERBAGE SEED CROP INSPECTORS

While positive identification of herbage species is possible (see key), individual varieties cannot usually be identified absolutely. However, TRUENESS TO TYPE can be authenticated according to general conformity in overall habit to known characteristics.

LEGUMES

These should be inspected when approaching 50% flowering, before there are too many faded flowers or ripening seed heads.

RED CLOVER

The red clover varieties grown in England and Wales fall into two main groups:

EARLY RED CLOVER (traditionally known as Broad Red Clover)

These varieties are earlier in spring growth and earlier to flower than late red clovers. They normally produce two main cuts and a small autumn cut. The seed is taken from the second growth, usually in September and October. The second growth shoots from the crown of the plant and flowering stems have 5-7 internodes. Full flowering on the uncut growth takes place towards the end of June, and on the regrowth about 6-8 weeks after cutting. All varieties shown in the table below are in this group.

VARIETY	PLOIDY	AVERAGE FLOWER COLOUR		USUAL RANGE OF COLOUR GROUPS	% AVERAGE HAIRINESS
AberRuby	Dip			0-9	
Deben	Tet	Dark	8.4	5-9	35
Essex Broad Red	Dip	Light	5.5	3.5-9	25
Kuhn	Dip	Dark	7.7	5-9	20
Kvarta	Tet				
Marcom	Dip	Light	6.3	3.5-14	10
Merviot	Dip	Intermediate	7	3.5-14	25
Milvus	Dip	Dark	8.6		11
Rajah	Dip	Intermediate	7.2		26

LATE RED CLOVER (traditionally known as Late Flowering Red Clover)

This group of varieties flowers 14 days later than the early group of varieties and commences growth later in spring. They are more persistent than the early red clovers. The seed is taken from the first growth. If grazed the second growth shoots from the buds at the base of the stems of the first growth. Flowering stems would normally have ten or more internodes.

WHITE CLOVER

Here leaf size and shape is a useful identification character. Inspectors need to become familiar with comparative leaf sizes of different varieties.

Comparative leaf sizes from NIAB verification plots are shown in the tables. Bear in mind that these are usually considerably larger than in the seed crops, but the RELATIVE SIZES should still apply.

VARIETY	PLOIDY	TIME OF FLOWERING	STOLON THICKNESS	LEAF SIZE
Aberdai	Tet	Intermediate	Medium	Medium
Aberguard	Tet	Intermediate	Thin	Small
Aberjet	Tet	Intermediate	Thick	Large
Alice	Tet	Late	Medium Thick	Large
Crusader	Tet	Early	Medium	Medium Small
Kent Wild White	Tet	Late	Thin	Very Small
Kersey	Tet	Intermediate	Fairly Thick	Medium Large
Merwi	Tet	Intermediate	Medium	Medium
Riesling	Tet	Late	Medium Thick	Large

Time of inspection

Inspect at end of June or early July when there is vigorous growth and plants are flowering freely. Differences in leaf shape are not so apparent in spring and autumn.

VETCHES

The two local vetches, English Early and English Late are morphologically similar, but may be distinguished under plot management by their time of flowering. Several continental varieties are now being grown which are recognised as spring types, but many of the crops are still being autumn sown for seed production. Accordingly, inspectors must check sowing time to judge when crops are due for inspection. This should be when the crop is in full flower, usually late June or early July.

Flowers are borne 1-3 in number in leaf axils. The keel petals are a darkish maroon-purple in contrast to the paler standard petal. The latter has a pale silvery-lavender zone near the leaf and on the reverse surface, giving the closed flower a silvery lavender appearance. Off-type flowers may be completely white or cream or a paler form of the true type.

The stems of Common Vetch are only slightly hairy. Extensive hairiness is a character of Hairy Vetch and if present would be counted as an off - type.

LUPINS

Agricultural lupins are stout, erect plants, with palmate compound leaves, narrow stipules and large flowers. Lupin species are partially cross-pollinated between plants within each species. In white lupins, the pollen matures after flower opening, allowing a greater possibility of cross-pollination than in blue or yellow lupins where the pollen matures earlier (giving more self-pollination). Lupins, especially white lupins are attractive to bees, this normally results in about 40% cross-pollination in white lupin.

White Lupins (*L. albus*) are usually fairly tall plants with relatively large leaves, consisting of 5-9 broad leaflets. The flowers are larger than in blue and yellow lupins.

Flower colour varies from white to blue or blackish blue, with a range of flowering dates. Anthocyanin stem pigment may be absent to strong. Most varieties are spring-sown.

Blue Lupins (*L. angustifolius*). Plants are generally shorter than normal white lupins, with woody stems, small leaves, narrower leaflets and with blue, purplish, pink or white flowers. Most varieties are spring sown and do not survive normal winters.

Yellow Lupins (*Lupinus luteus*). This species is usually the shortest in height, with medium sized leaves and width of leaflets. Flower colours are a range of yellows. Varieties are spring sown.

Crop Inspection of Lupins

Previous cropping requirements are: No lupins in the preceding 2 years (good practice),
1 year (minimum compatibility)

One field inspection is carried out at Full flowering (usually late June to July for spring sown crops).

Isolation requirements are the same as for other herbage species, minimum distances for certified seed production are 100 metres for crops up to 2 ha, and 50 metres for crops over 2ha.

Parts of seed crops falling within the isolation distance should be cut out rather than rejection of the whole crop.

The three species do not cross-pollinate (produce seed) with each other, as each has a different chromosome number.

A narrow physical isolation gap is also required, particularly from adjacent crops of field beans, field peas, soya beans or other lupin species.

Number of quadrats. Varietal off-type counts for certified seed production are made in the usual number of 10m² quadrats which are appropriate for the field size.

Examples of off-types are:

Different flower colour
Indeterminate plants in determinate crop, and vice versa
Stem anthocyanin colour present or absent
Plant height differences

Acceptance or Rejection figures for varietal purity are the same as for other herbage species. Maximum average varietal purity standards are 1 off-type plant in 10m² for certified seed production (and 1 off-type plant in 30m² for Pre-basic or Basic seed production). Other lupin species are not counted as off-types (Seed Standards exist for these).

LUPINS: VARIETY CHARACTERISTICS

	Leaf colour at bud stage	Stem anthocyanin at bud stage	Plant height at start of flowering	Plant height at 'green maturity'	Terminal leaflet length	Terminal leaflet width	Flower colour	Flower colour at end of keel	Flowering time
White Lupin <i>Lupinus albus</i>									
Amiga	Medium green	Medium	Medium	Medium to tall	Medium	Medium	Blue-green	Blue-black	Early
Bardo	Light to medium green	Medium	Short to medium	Short to medium	Medium	Broad	Bluish white	Bluish black	Early
Dieta	Medium to dark green	Medium to strong	Medium	Short	Medium	Medium	Bluish white	Blue-black	Very Early
Volos	Light to medium green	Strong	Medium to tall	Short	Long to very long	Broad	Bluish white	Bluish black	Very early to early
Blue Lupin <i>L. angustifolius</i>									
Arabella	Medium to dark green	Absent or very weak	Short-Medium	Medium	Short	Narrow to medium	White	Yellow	Early to medium
Baron	Dark green	Medium	Short-Medium	Short-Medium	Very short to short	Narrow to medium	Blue	Blue-black	Medium
Bolivio	Medium green	Absent or very weak Medium	Medium to tall	Tall	Short	Narrow to medium	Bluish white	Yellow	Early to medium
Boltensio	Medium to dark green	Medium to strong	Medium to tall	Tall	Medium	Narrow to medium	Bluish white	Yellow	Early to medium
Bora	Light to medium green	Medium	Medium-Tall	Medium to tall	Short	Medium to broad	Bluish white	Yellow	Early to medium
Bordako	Dark green	Slight to medium	Medium	Medium	Short	Very Narrow	Bluish white	Yellow	Early-Intermediate
Borlana	Medium to dark green	Medium to strong	Medium	Short to medium	Short	Narrow to medium	Bluish white	Yellow	Medium
Boruta	Medium green	Very weak to weak	Medium	Medium	Medium	Medium to broad	Base violet shading to white	Yellow	Medium to late

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<u>Blue Lupin</u> Cont.									
Borweta	Dark green	Slight to medium	Short-Medium	Short-Medium	Short	V. Narrow-narrow	Bluish white	Yellow	Early
Prima	Medium green	Absent or very weak	Medium	Short	Long to very long	Medium to broad	Bluish white	Yellow	Early to medium
Rose	Medium green	Weak to very weak	Medium	Medium to tall	Short	Narrow to medium	White	Yellow	Early
Sonet	Dark green	Strong to very strong	Medium	Very short to short	Medium	Medium	Blue	Blue black	Early to medium
Viol *	Dark green	Medium to strong	Short-Medium	Medium	-	Medium to broad	Violet	Yellow	Late
Iris	Medium	Weak	Medium	Medium	Short	Medium	White	Yellow	Early
<u>Yellow Lupin</u> <i>L. luteus</i>									
<u>Bornal</u>	Medium to dark green	Weak	Medium to tall	Medium to tall	Medium	Narrow to medium	Yellow	Blue black	Medium to early
Pootalong							Yellow		

* = Determinate growth habit

CHARACTERS OF COMMON VETCH

VARIETY	Type	Leaf Colour	Shape of Leaflet Tip	Shape of Leaflets	Colour of Standard Petal	Seed Size	Seed Shape	Seed Coat
AMETHYSTE	Spring	Mid green	Square	Medium	Medium Violet	Large	Round	Grey brown, brown and black marbling
BERNINOVA	Spring	Mid green	Concaved	Broad	Medium Violet	Small	Semi round	Grey green with widespread brown blotches and medium blue-black marbling
CARMEN	Dual purpose	Mid green	Square	Broad	Violet	Medium	Oval	Uniformly dark black, velvet effect
CRISTAL	Winter	Mid green	Rounded	Broad	Light violet	Medium	Round	Grey brown, extensive black & dark brown blotches and spots
ENGLISH EARLY	Winter	Dark green	Concaved	Broad	Lilac purple	Medium large	Semi round	Grey brown, brown and black marbling
ENGLISH LATE	Winter	Dark green	Concaved	Broad	Lilac purple	Medium large	Semi round	Grey brown, brown and black marbling
LOLITA	Spring	Dark green	Concaved	Broad	Deep violet	Medium	Oval	Green to grey base with brown and black blotches
PRESTA	Spring	Mid green	Square	Long and Narrow	Light violet	Medium	Semi round	Light brown with darker mottling
SLOVENA	Spring	Mid green	Straight to concaved	Medium	Bright violet	Medium	Round	Brown with strong blue-black marbling
SYLPHIE	Spring	Mid green	Square	Rounded	Light violet	Quite small	Semi round	-
TOPAZE	Spring	Mid green	Straight	Medium	Mid violet	Medium	Globose	Grey brown with brown marbling
TOPLESA*	Spring	Dark green	Concave	Broad	Light violet	Medium	Angular	

*Determinate type



DAYS AFTER FIRST OF MARCH

Date	March	April	May	June	July
1	1	32	62	93	123
2	2	33	63	94	124
3	3	34	64	95	125
4	4	35	65	96	126
5	5	36	66	97	127
6	6	37	67	98	128
7	7	38	68	99	129
8	8	39	69	100	130
9	9	40	70	101	131
10	10	41	71	102	132
11	11	42	72	103	133
12	12	43	73	104	134
13	13	44	74	105	135
14	14	45	75	106	136
15	15	46	76	107	137
16	16	47	77	108	138
17	17	48	78	109	139
18	18	49	79	110	140
19	19	50	80	111	141
20	20	51	81	112	142
21	21	52	82	113	143
22	22	53	83	114	144
23	23	54	84	115	145
24	24	55	85	116	146
25	25	56	86	117	147
26	26	57	87	118	148
27	27	58	88	119	149
28	28	59	89	120	150
29	29	60	90	121	151
30	30	61	91	122	152
31	31		92		153