



## LUPIN BULLETIN (White Lupin)

### To all White Lupin Growers for 2020

Welcome to the first bulletin of this season. Throughout the year you will be updated on topical issues by bulletin with the aim of helping you grow an excellent crop of White Lupins.

### SEED DELIVERIES

Seed deliveries are underway, and we expect to have all seed on farm by the end of March. This will be in time for the projected sowing dates which are from the early part of April, through to late April.

Almost all growers will receive pre-inoculated seed this year, but where it is a special seed lot, or trials seed, then the inoculant will be in separate sachets. In these cases, the inoculant will be packed with the seed on the top of the pallet. (Please don't phone us to check if your seed will be pre-inoculated – almost all of it will be, and any growers using sachets will already be aware).

One big change this year is the shift to a liquid-only formulation, so the pre-inoculated seed will look different to previous years. We used this system last year in the soya, and it has proved very popular since it means there is no more of the black dust that the previous system involved. Instead, your seed will be a blue colour. This is not a chemical dressing – it is actually a simple bacteria-compatible food dye which is used to indicate that the liquid pre-inoculant has been applied.

Please, please, please check your delivery at the time and ask yourself the following questions;

- Have I got the correct amount of seed for each acre I am intending to plant? (see below).
- Is the seed pre-inoculated? Check the label or look to see if it is blue.
- If it isn't pre-inoculated, have I got the inoculant packs? (They are packed with the seed on the top of the pallet, or in the case of half-tonne seed bags, they will be inside the top skirt of the bag).

### BAG SIZES, SOWING RATES & SOWING DATE

Seed will be packed in 25kg or 500kg bags, and will be either pre-inoculated or accompanied with sachets.

Dieta is drilled at 75kg/acre (185kg/Ha), and the seed will be packed in bags of 25kg or 500kg. You should have 75kg of seed for each acre booked.

For growers who are planning to harvest with a combine, the ideal sowing date is early to mid- April. If you intend to silage the crop, then sowing date is less critical and you can sow later if you wish. The advice is to get them in at the first good opportunity from early April onwards, but do not rush them in. Sowing conditions are more important than date.

### INOCULATION: WHY & HOW

Lupins are a legume and will fix very large amounts of atmospheric nitrogen, however the strain of rhizobium bacteria that allows lupins to do this is not found in UK soils. As a result, it is always necessary for UK lupin growers to use a rhizobium inoculant in order for the crop to fix atmospheric nitrogen. Failure to inoculate will result in zero N-fixation, whilst a properly nodulated crop will fix over 200kg / Ha of N.

This year, almost all of our seed will be pre-inoculated, but in some circumstances it is still normal practice to use the separate sachets. In this instance, growers need to mix this inoculant with the seed immediately prior to drilling. This is usually carried out in a telehandler bucket, or in the drill hopper as it is being filled. Inoculation is an easy task and whilst first-time growers may be apprehensive, experienced growers find the use of the inoculant very straightforward. There is no need to over-mix the seed. Just a rough mix is enough. Also, do not use cement mixers, added water, added milk, or anything else that some bloke on YouTube thinks is a good idea.... The inoculant packs come in a variety of sizes, but as a general rule, the 400gramme pack will do 100kg of seed, the 750gramme pack will do 200kg of seed, the 1.25 kg pack will do 350 kg, and the big 3.75 kg pack will do one tonne of seed.



## NITROGEN

Although nitrogen-fixing, the root nodules need about five weeks before making an active contribution and the seedling crop will use 25kg/Ha of nitrogen in this period. In most soils, this will be available through natural mineralisation, however on light soils in the arable areas, it may be advisable for growers to ensure there is around 25kg/Ha of nitrogen available to the crop from sowing. Excessive nitrogen levels in the seedbed can be a negative factor, so please don't overdo it, and most growers will probably not need any. Also please take account of the rules on nitrogen use on legumes and don't be caught out on any technicalities....

## PHOSPHATE, POTASH, SULPHUR & MAGNESIUM

Lupins do well on thin and poor soils, so they are generally regarded as a low-input crop, but they will remove 40-60kg/Ha of Phosphate ( $P_2O_5$ ), 40-60kg/Ha of Potash ( $K_2O$ ), and 20-40kg/Ha of Sulphur ( $SO_3$ ) depending on yield. It is normal practice to consider the soil indices and apply fertiliser if it is required. If applying fertiliser, you can either put it in the seedbed, early top-dress it, or replace it later in the rotation if the indices are high enough to allow a "fertiliser holiday". It is worth noting that although lupins are generally tolerant of thin and low-fertility soils, they are fairly sensitive to phosphate deficiency, (which is also the most yield-damaging deficiency). In previous years we have observed a good response to applied Phosphate in deficient situations, so it is worth taking notice of the table and applying to requirement.

**Typical recommendations are as follows:**

| Soil Index              | 0  | 1  | 2  | 3 | 4 |
|-------------------------|----|----|----|---|---|
| Phosphate (kg/ha)       | 80 | 60 | 40 | 0 | 0 |
| Potash (kg/ha)          | 80 | 60 | 40 | 0 | 0 |
| Sulphur ( $SO_3$ kg/ha) | 40 | 20 | 0  | 0 | 0 |
| Magnesium (kg/ha)       | 80 | 30 | 0  | 0 | 0 |

- At index 0 or 1, the fertiliser should be applied to the seedbed and incorporated.
- At index 2, the fertiliser can be applied to the crop at anytime.
- Two possibly useful products are Ammonium Sulphate, which will supply Sulphur + Nitrogen at 21% N, 60%  $SO_3$ , or Magnesium Sulphate (Kieserite or Epsom salts) which will supply Sulphur + Magnesium at approx 25%  $MgO$ , 50%  $SO_3$ , depending on the product chosen. Gypsum (Calcium Sulfate) is also a possible source of sulphur, but it has a liming effect so refer to the pH notes below before applying.

## SOIL pH

Bear in mind the safe pH range for White Lupins is 5.0 – 7.9 (5.0-7.0 for blue lupins). Although the vast majority of soils fall into this range, anyone who is in doubt still has time to get a soil test done.

## PRE-CULTIVATION WEED CONTROL

If you get an opportunity, and conditions allow, spray off any significant weed growth prior to ploughing any stubbles, or before drilling your Lupins. It pays to start clean and avoid transplanting weeds.

## CALIBRATION OF DRILL

Only calibrate the drill **with inoculated seed**, as the inoculant will affect the flow of the seed. (The new-style inoculant is much better and consistent than the old black powder inoculants).

Check the sowing rate and bag sizes and calibrate accordingly. Please also remember to **stop occasionally and check your calibrations** as calibrations can shift during operation. Where we see drilling errors, they are mostly due to operators not monitoring the calibration and the rate of seed use.



## DRILLING

Aim for a medium to fine seedbed, which is similar to that used for normal spring cereals. The seedbed should be firm, moist & free from compaction. Use the following guidelines:

- Optimum planting date should be early to late April, however soil conditions are more important than the sowing date so aim for good soil conditions.
- Use the minimum number of passes to create the seedbed.
- The ideal seedbed is a top layer of fine soil with a firmer zone below to act as a limit for the drill coulter.
- Always calibrate the drill to take account of seed size, seed dressing and inoculant.
- **Check the calibration soon after you start** - The calibration will often shift after you start, so make sure you re-calibrate once you have drilled 3 or 4 acres.
- Drill at sensible speed to achieve an even depth.
- **Drill seed at 3-5 cm depth\***
- If the seedbed is too puffy, consider rolling prior to drilling to help achieve even depth.
- Avoid compaction

\* Drilling depth is taken from the top of the tilth layer, below any large clods. Normal cereal drills and row widths are fine for Lupins as long as planting depth can be maintained.

## ROLLING POST DRILLING

Normally, the ground would be given a light roll immediately after sowing (prior to the use of the pre-emergence chemical being applied). Take care on soil prone to capping, and do not roll if the ground is too wet, but rolling is generally a good idea if;

- seed beds are dry and there is a need to conserve moisture, or
- seed beds are puffy and there is poor seed to soil contact, or
- seed beds are cloddy so effective herbicide use will be difficult, or
- stones could cause a problem at harvest

## PRE EMERGENCE WEED CONTROL in WHITE LUPINS

Unless you are organic, the last of the field operations should be the application of a pre-emergence herbicide. This should be applied as soon as possible after the last operation (the drill or rolls).

Post-emergence herbicide options are currently quite limited in Lupins, so the use of the pre-emergence herbicide is the cornerstone of our weed control strategy.

Current approvals allow for the use of Stomp with Gamit/Centium as per the table below. We know that Nirvana and Dual Gold are both a very good substitutes for this, and we are looking at securing the necessary permissions for this. Please phone us if you wish to discuss this.

If planting after the 25<sup>th</sup> of April, you must add some Lambdastar to the pre-em to guard against Delia Bean Fly. Please read the Delia Bean Fly section below.

| Timing                     | Product                        | Rate                         | Water Rate | Spray Quality     |
|----------------------------|--------------------------------|------------------------------|------------|-------------------|
| Pre emergence<br>2-way mix | Stomp Aqua<br>+<br>Gamit 36 CS | 2.4 lt/ha<br>+<br>0.25 lt/ha | 200 lt/ha  | Medium/<br>Course |

- Pre-emergence herbicides work best if there is moisture present when they are applied.
- Spraying immediately up behind the drill/roll will give the best results.
- Please note that the above rates apply to white lupins. We do not endorse the use of Gamit/Centium with Blue lupins – it is fine for white or yellow lupins, but too hot for Blues unless the rate is much reduced. Nirvana and Dual Gold are better options in blue lupins and we hope to get an EAMU for them at some point.
- Please note that these pre-emergence mixtures are **not** suitable for a lupin/cereal wholecrop mix. (Normally you would simply use a straight application of Stomp).



## PESTS

### Pigeons

Pigeons can be a problem for a short period at establishment. Keep them off until the first true leaf has appeared and the crop is well established. After this stage the pigeon threat goes away but vigilance is advisable in these early stages.

### Rabbits/Hares

Fence them out if they are likely to be a serious problem, but they are not a major pest of Lupin.

### Slugs

Like the rabbits and hares, slugs are only a real problem in specific scenarios where the pest pressure is very high. If they are a problem then apply slug pellets as required.

### Leatherjackets

Again, leatherjackets are generally not a major pest of Lupin however they can be a problem in specific scenarios where the pest pressure is very high. If you are planting after grass or green stubbles, it is probably worth checking the populations

### Delia Platura (a.k.a. – “Bean seed fly” or “Delia bean fly”)

If you sow from around the 25<sup>th</sup> April onwards, then this is a very real threat. Delia flies are attracted to late-sown leguminous crops such as beans, soya or late-sown lupins, and they can do a lot of damage to late-sown or late-emerging crops. Generally, crops that emerge and break the soil surface from the beginning of May onwards would be at risk – especially if the weather is warm and has been warm during the preceding days. The window for infection is very brief – just as the crop breaks the surface, the fly lays the egg on the side of the stem at ground level. Within 3 or 4 days, the crop is more or less immune, but do not risk it, since the fly can take out 50% of the plants if you have a bad infection. If you think there is a risk, the best method of control is to spray the crop with a pesticide such as **Lambdastar** or **Hallmark** just as the cotyledons begin to break through the ground. This can be tank-mixed with the pre-em chemicals if it is easier to apply in one operation.

## IN SUMMARY....

- Consider nutrient status of ground and take slurry or FYM applications into account.
- Get a decent seedbed.
- If it isn't already pre-inoculated, make sure you inoculate the seed with the inoculant provided - the root nodules give you something like 200kg/Ha free Nitrogen!
- Work out your sowing rate beforehand, calibrate the drill and remember to check it after you start.
- Apply the pre-emergence spray mix as soon as possible after your last ground operation. (Usually straight after rolling or onto the dew the morning after drilling).
- Look into pre-emergence chemical availability now – and phone us if you need to.
- Remember, check your delivery when it arrives – you should have 75kg per acre for white lupins.

Always read the label carefully before using pesticides and only use as directed therein.  
Use pesticides safely.

Soya UK Ltd recommend you seek the advice of your chemical advisor regarding your particular situation prior to applying pesticides.

DM 11/03/20

## SPECIAL NOTES FOR SEED GROWERS

- Retain at least **two** seed labels – the crop inspector will ask to see them in the summer.
- If you have 2 or more seed lots delivered retain labels for each seed lot.
- Ensure the crop is isolated from other crops by a 2 metre gap or a physical barrier (eg a hedge), and is at least 100 metres from other lupins of the same kind.
- Can seed growers please ensure they return their contracts (if you have not already done so). We need the field details to enter the crop with N.I.A.B.