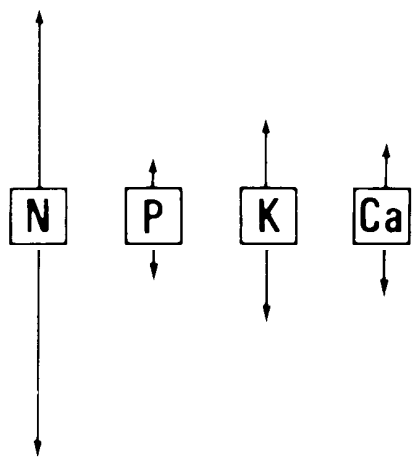


Starter Fertiliser and the Relative Movement of soil nutrients

Starter Fertiliser

Applying “starter fertiliser” at planting with your winter crop will provide the germinating seed and emerging crop with a small but concentrated amount of available nutrients. The amount of starter fertiliser applied (MAP, or SuPreme Z) is not intended to replace any low soil nutrients, but to supply generally a mixture of a few nutrients: like nitrogen, phosphorus and maybe a trace element like zinc in a band with the seed at planting. This shall ensure vigorous, early and even growth or “pop-up” effect of the above ground shoots. In addition it shall stimulate the root system causing a greater foraging ability for soil nutrients throughout the soil. As soil temperatures drop prior to wheat planting so shall the availability of nutrients that may come from the break down of organic sources like the stubble from the previous crop or manures applied. Root growth shall also be slowed under cooler soil temperatures than in spring; adding to the need for the root system to find these essential nutrients close by.



When adding starter fertilisers with the seed at planting, attention needs to be given to the amount of fertiliser applied as well as its form (whether MAP or DAP) so as not to apply excess nitrogen next to the seed: refer back to article in Kickin Clods - Oct. 2009 on Safe Fertiliser with Seed, or phone your local Pursehouse Rural agronomist.

Starter fertilisers are generally applying a few kg/ha of nitrogen and phosphorus. The application of phosphorus at this early stage in the crops growth (first 4 weeks) is essential to encourage and support the rapid cell division and expansion; if insufficient is supplied then wheat shall reduce its tillering, head and grain numbers. It is important to understand that the potential for the head and grain numbers are established very early in the development of the crop.

Unlike nitrogen, phosphorus is immobile in the soil; moving only a fraction of the distance that nitrogen or other more mobile elements move in the soil, placing even greater importance on the need for a soluble available form to be within millimetres of the small root system.

Relative movement of nutrients within the soil.

Wheat crops (unlike some of the summer cereals including sorghum) have a low dependency on VAM (a beneficial fungus); even so in the absence of suitable VAM numbers there could be a 10 – 30 % yield reduction. The wheat crop shall help to build up VAM numbers for the following crop but if your soils have been fallowed for a long time under dry conditions they could be prone to “long fallow disorder” and respond well to starter fertiliser.



In wheat most of the phosphorus removed from the paddock shall be in the grain (75 %) with very little cycling back from retained stubble into the soil. With about 2.5 kg phosphorus/tonne of grain being removed, an average dry land yield of 3 t/ha (1.25 t/acre) would see 7.5 kg phosphorus/ha leave the paddock. Long term fertiliser trials at Colonsay (on the Darling Downs) have seen over many years that applying 10 kg phosphorus/ha as a starter fertiliser for winter crops has yielded an increase of 0.5 t/ha in contrast to the nil treatment.

The amount of soil phosphorus present and available for your crop can be easily established by getting a soil test in the next month, with the current Colwell P test an adequate indicator of plant available phosphorus in our alkaline soils.

For further information contact your local Pursehouse Rural Agronomist.

IS IT STILL TOO EARLY FOR OATS?

Oats are a winter crop and like to be planted into cooler soils. The consequences of planting a winter crop such as oats into 'hot' ground are similar to planting a summer crop into 'cold' ground - reduced germination, reduced shoot length and reduced plant establishment.

The optimum soil temperature range for the germination and establishment of oats is between 15°C and 25°C. As soil temperature increases, germination and establishment decreases. At a soil temperature of 35°C oats will not germinate.

Soil temperatures should not be "guesstimated" by subtracting the minimum and maximum air temperatures. The only accurate way to find maximum daily soil temperatures soil is by placing a thermometer in the soil at planting depth in the late afternoon (around 5pm).

When deciding whether to sow oats early in the cropping program, a number of factors must be taken into account. First, what are the advantages and disadvantages of early sowing? By sowing as early as possible with a later maturing variety:

- The crop will have the opportunity to give the highest possible yield
- The grain protein content will be lower (one month delay in sowing date can increase protein by about 1 per cent)
- Foliar diseases will be more severe
- In good growing conditions the crop will be taller and may lodge

A variety that is well adapted to early sowing will have a high level of foliar disease resistance. To offset the effect of disease and lodging growers sowing early should carefully consider variety selection to minimise the impact of rusts. Sowing should be delayed until at least mid March to reduce exposure to leaf rust and allow the crop to maintain adequate growth before winter. Disease resistant varieties are more suitable for hay whilst dwarf varieties (which have reduced risk of lodging) are ideal for grain pro-

duction. Invariably early sowing results in higher hay yields compared to late sowing.

Oats nutritional requirements and fertiliser rates are similar to those recommended for wheat nutrition. Starter fertiliser at sowing is recommended, but should be applied separately to the seed as the fertiliser can damage the seed and reduce its germination.

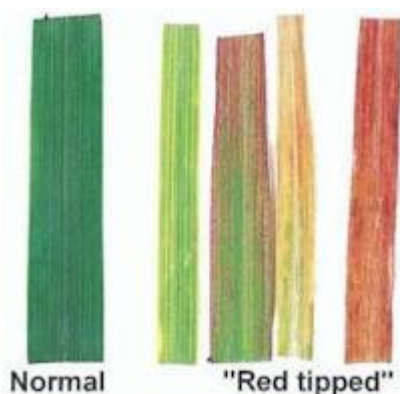
Red tipped leaf is an extreme form of foliar disorder in oats. It is associated with deficiency in nitrogen, phosphorus, potassium, zinc and sulfur in the soil. Nitrogen deficiency is the most common cause of red tipping. The reddish colour, seen mostly on mature leaves is caused by the presence of anthocyanin. The intensity of the redness varies with the season. Early stages of the disorder show light yellow veins running parallel to the mid-rib of the leaf. This appears similar to herbicide damage (metsulfuron-methyl). The entire leaf surface may appear as light yellow in colour. In the later stages the tip may turn red. In cold, dry winters the colour deepens to almost purple, while in mild, wet winters it is a more washed out orange-red. Affected plants are stunted and are less palatable for livestock.

Rust may develop in the temperature range between 15 and 20 degrees Celsius. As the temperature drops rust development will slow down or cease. In areas where these temperatures are likely to occur for a significant amount of the crop growth it is a good idea to select varieties which have leaf rust resistance.

Delay sowing until at least after mid March as this reduces exposure to leaf rust and still allows the crop to maintain adequate growth before winter

For further information contact your local Pursehouse Rural agronomist.

<http://www.pacificseeds.com/products/oats/index.htm#tooeary>



What you may not know about Oats

A now obsolete Middle English name for oats was *haver*, which survives in the name of the livestock feeding bag haversack

Only about 5 percent of oats are consumed by humans

Traditional medicinal uses of oats include the treatment of rheumatism, depression, chronic neurological pain, and loss of bladder control, and, externally, as a skin cleanser and softener.

SUMMER WEED CONTROL

Spraying summer weeds to conserve moisture and prevent seed set is good cropping practice, but it is also important to remove the 'green bridge' between winter crops. The green bridge occurs when uncontrolled weeds and volunteers provide a host for insects and diseases, which may pose a risk to the following crop.

Rusts are the most common diseases harbored by an uncontrolled green bridge. Spores are easily spread by the wind so it is important for all neighbouring properties to have clean paddocks. Likewise, aphids and mites can survive via the green bridge over summer and autumn and will move into vulnerable crops.

Complete kill of the weeds and volunteers is the only way to prevent them providing a host to pests. If the "green-bridge" is not controlled, insects and diseases can move in to new crops. According to the GRDC, if the green bridge has not been eliminated early in the season it is essential to create a break of at least 2-3 weeks where there is no green plant matter.

Poorly sprayed paddocks are not the only green bridge risk areas, growers should be aware that roadsides, headlands, non-cropped land and even gardens can all provide a home over summer for unwanted pests.

Herbicides are heavily relied upon as growers move towards zero-till. It is therefore important to ensure chemical groups are rotated to reduce the risk of resistance.

For more information on reducing the risk to your upcoming winter crops speak to your local Pursehouse Rural agronomist.