Crop Action

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Editor's note

Welcome to the first summer edition of Crop Action! FAR's ARIA (Arable Research in Action) event was held at Chertsey on 26 November. The site looked fantastic, the vibes were good and the we heard from a variety of FAR and non-FAR speakers on topics as diverse as ryegrass stem rust management to what makes good quality milling wheat for bakers. If you were unable to be there, you can view the accompanying booklet here.

FAR's popular combine harvester workshops also ran this week, but if you were unable to make it to one of these, see the article below for advice on getting your harvester set up for harvest. On the topic of harvest, FAR would like to remind growers that the result of the recent government review of glyphosate residue limits in wheat, barley and oats for human consumption remains unchanged at 0.1mg/kg. Read more on this decision here.

For those in the Waikato, a maize research "Walk and Talk" event is happening this week (Thursday December 11th) at FAR's NCRS site. Among other things, we will be looking at a new trial investigating old and new herbicides on a range of weeds. At the other end of the country, there is a field day at Knapdale in Southland, also on growing maize.

Biosecurity threats can really ramp up at this time of year. Fall armyworm is being monitored in the north; see the article below for the latest information. Growers should also be vigilant for black-grass, as it can be more easily identified and distinguished from other grass weeds at this is the time of year when. More information on blackgrass can be found here or here. While not likely to have been recorded (yet) on arable farms, yellow-legged hornets could be devastating to pollinators if they become established here. The recent detections in the Auckland area are a concern. More information is available on the MPI website. A fact sheet is also available.

Regional Updates

Southland/South Otago

The weather in South Otago and Southland has been unsettled over the past few weeks. There has been quite a lot of wind which has made spraying a challenge.

Spring-sown cereal crops are looking great despite delayed planting for most. Growers are having to carefully manage the timing of nitrogen applications to make the most of soil moisture.

I hope those that attended had a good time at the combine workshop on Thursday and look forward to seeing you at our last event for the year, Cereals and Growing Maize at the Knapdale Hub at 4pm on Tuesday. *Nicole Foote, FAR Regional Facilitator*

South Canterbury/North Otago

Recent rain has been a welcome relief as irrigators had been running flat-out but still struggling to keep up. Some growers are applying fungicides to brassicas and cereals (some have finished T3 applications) and getting urea on,

Crops are now at full head emergence. The usual weeds are popping up, so rogueing has been important to reduce the risk of weed seed development and drop. Windy, dry conditions have generally kept disease pressure relatively low, although one grower has reported reasonable numbers of aphids in spring barley and OSR, along with signs of YDV. Unfortunately, it's too late for treatment at this stage, so it will be a case of managing as best as possible.

December is generally a quieter month on-farm, with attention turning to pre-harvest machinery maintenance and servicing, and taking the opportunity for some well-earned time off. *Jo Fearn, FAR Regional Facilitator*

Mid Canterbury

Recent hot, windy conditions caused the soil moisture levels to drop significantly, so two days of rain and cooler temperatures last week were a welcome relief. Pest and disease pressure is under control with the usual management practices and the hot weather playing a part. Fungicide programmes are underway. Crops are looking good around the region with ryegrass crops progressing well. *Cindy Lowe, FAR Regional Facilitator*

Northern South Island

The re-drilling of crops due to wet autumn and spring weather events has been completed. This has added cost, but crops are now established and progressing as hoped.

Crop management decisions are focusing on fungicide applications and irrigation, although low disease pressure is reported across the region. Wheat flag leaf sprays are completed, with flowering fungicides to be weighed up over the coming weeks. Grasses are flowering, most have received their PGR, and fungicide programmes are being planned. Fungicides programmes also continue on spring sown seed crops such as peas and radish.

Irrigators are working, with timely rain in many areas helping them keep up as crop water demand increased in recent hot days.

Some growers are reporting bleaching on harvested process peas, the cause for which is not yet established. Any weeds that have escaped herbicide programmes will become obvious in December and growers are advised to monitor closely. Reducing seed set from escaped plants is the focus for this time of year – school holidays come at a good time for rogueing and spot spraying!

Herbicide resistance is also something to keep in mind as you finalise next year's crop rotation over the next few months – consider what control each rotation option might allow (both using different groups of chemistry, but also incorporating cultural controls). *Donna Lill, FAR Regional Facilitator*

Southwest North Island

Most Manawatu growers had their maize planted within the normal window this season despite wet conditions. Since planting, high winds and sunshine have created a surface seal which has impacted seed emergence for some growers, though recent rain has helped. Cutworm pressure in maize has been moderate to severe across all regions, leaving a few paddocks looking shabby. Bird damage has been a problem for some Manawatu growers this season too with springtails and slugs adding to the challenge. Beet crops have been hit hard; significant losses reported and some replanting will be necessary. While late-planted process peas are looking good, there is ongoing re-sowing of minor crops due to cutworm damage.

In Taranaki, there is a lot more strip-till happening, but many replants have been needed in Taranaki and Whanganui due to cutworm and bird damage. Even seasoned growers have had to replant where bird repellent was not used. Grass silage production is down this year, and many dairy farmers are looking to buy in silage.

In the Rangitikei, brassica and forage programmes are up to date, and everything is in the ground and on track, provided we get some moisture soon. Pricing remains the biggest consideration this season for many growers. Unirrigated wheat is feeling the pinch from low moisture levels, and barley and spring wheat are also in need of rain in the Rangitikei.

Horowhenua has seen good planting and establishment conditions and most growers got their maize in within the normal window. Moisture levels are particularly good and there has been plenty of sun to get maize growing well. A lot of grass silage has been cut in the area, although demand is strong. *Megan Cushnahan, FAR Regional Facilitator*

Eastern North Island

It has been a great start to the season in Wairoa, with crops looking fantastic. Our grower in the region reports that he will have everything side-dressed and the gate shut by the end of this weekend. In general growers are hoping for a little more rain to keep things ticking along.

Tararua has had very good growing conditions, and the maize has been planted and is generally running to time. Cutworm has been an issue for many maize growers and one grower I spoke to has lost their fodder beet crop to a severe cutworm infestation. Quite a lot of grass silage was harvested in the past two weeks, however it seems to be down on last year.

Central Hawkes Bay has had a mixed start to the season. The dry conditions in October have been balanced out by good moisture in November in some areas, however conditions are dry closer to the coast. It will be interesting to see how yields of spring wheat go. Winter wheat has performed really well this year but birds are giving it hell. Winter barley crops are the same as spring barley - pretty light, due to the dry conditions in October. Winter malt is just on the turn and seems to be in good shape. Maize crops have bounced back from the wind damage suffered last month and have benefited from the improved moisture conditions in the past couple of weeks. Dryland maize is far better than last year. Peas are low to average as the dry and heat are impacting performance. *Megan Cushnahan, FAR Regional Facilitator*

Crop management

General

Irrigation

Long periods of hot, dry weather are being forecast for Canterbury and other areas, so irrigation management is a priority for those with access to it. While everyone's situation will be different, there are some key points that can be considered when making irrigation decisions.

- Know your crop...how much water does it need and from what depth can it access water?
- Be aware of evaporation. On hot days up to 5mm of moisture may be lost from the top of the profile.
- Consider whether you are best to put on small amounts of irrigation more often, or a larger amount less often.
- Use the data from your moisture probes. Information on FAR's moisture probe trial programme can be viewed here.
- For more information, see:
    - FAR Focus 4 – Irrigation Management for Cropping: A Grower's Guide.
    - Irrigation management for ryegrass seed crops
    - Irrigation management for browntop seed crops

Setting up your combine

A big focus for FAR over the past three seasons has been (and continues to be) educating growers and facilitating conversations around combine setup to improve efficiencies at harvest. This is a huge topic and there are a lot of variables involved. Three workshops were held this week in the South Island, but if you were unable to attend one of these, there are numerous resources that you can access to give you an overview of this topic, or to dive really deep into the details.

- The Australian GRDC has a comprehensive 92-page guide on harvester setup that can be accessed here.
- FAR's Chris Smith discusses what we've learned from the programme so far (from the 2025 FAR Conference).
- FAR's 2024 article on measuring harvest losses.
- A recent Cut the Crop podcast.

Preparing silos for harvest

Harvest is getting closer by the day and most silos are emptying. To prevent a potential infestation, silos and surrounding areas should be thoroughly cleaned. This can be done by:

- Sweeping the base of the silo.
- High-pressure wash of all surfaces inside the silo with water.
- Spray herbicide around the base of the silo, to remove habitats where insects could thrive.
- Ensure offal from the silo is dumped well away from the silo, or bury/burn it.
- Spraying with insecticide should be the last defence mechanism to prevent an infestation.
- However, spraying the silo pre-filling can be beneficial to remove any insects that are hiding in cracks or hard to reach places in the silo.

- Maintain clean storage premises with occasional residual spraying of critical areas (around the door and the base of the silo).

For further information see understanding stored grain pests. A more comprehensive publication on the drying and storage of grain and herbage seeds has recently been updated, and is available here.

Cereals

Late season wheat disease management

While a T4 application during GS 69-71 can provide some protection against late-season diseases, FAR research indicates it should be considered seasonally, based on disease risk factors. Reports coming in to FAR and other anecdotal evidence suggests that disease pressure across most of New Zealand has been moderate this season. This means you need to consider the impact of current grain prices when confirming your fungicide programme. Also, be mindful of withholding periods with any late fungicide application. For further information see Arable Update 229 here.

Aphid monitoring

Aphid monitoring has concluded for the season at sites in Canterbury, while data from some sites in Southland continues to come in. You can access this, as usual, at Aphid Chat. It has been an unusual season. Sticky traps were not picking up significant numbers of winged aphids throughout the main risk period of GS 21-GS 32, but there were some other warning signs (as detailed in the weekly Aphid Chat reports). This has been borne out by several reports that have reached FAR of YDV symptoms in autumn-sown wheat in Canterbury. Winged aphids spread YDV through the crop, which is why a sudden increase in winged aphid detections is a warning that YDV could lead to yield losses if the crop is vulnerable (i.e. before GS 32). While there was an extreme spike in winged aphid detections in Canterbury in November, data from previous seasons suggests that this shouldn't result in significant yield losses. We will, however, be keeping an eye on aphid numbers through to harvest, as very high numbers of aphids feeding directly on the head have been shown to affect yields in Australia.

Whole crop cereal silage harvest timing

- The ideal harvest time is when the crop is 32-40% DM and grain has a cheesy-dough consistency.
- Harvesting too early will result in losses in yield and quality.
- Harvesting too late can create complications with stacking and ensiling, and grain losses with feeding out.
- Harvesting equipment and stack additives can help overcome some issues associated with harvesting outside the harvest window.
- Current NIRS testing of cereal silage using pasture standards do not provide accurate results for whole crop cereal silage and in general, underestimate ME (metabolizable energy) by an average of 1 MJ/kg DM.

It is common for whole crop silage to be harvested too early when the grain is still watery or milky. Harvesting earlier than 32% DM is not recommended, as the crop has not yet reached its yield potential and feed quality will be poor, with little to no starch due to incomplete grain fill. At this stage, there are also likely to be ensiling issues (due to high pH) which can lead to yield and quality losses in the stack.

Grain consistency is a good way of determining if the crop is ready to harvest. At the ideal harvest, the grain will have a cheesy-dough consistency and the crop will be near peak dry matter yield. Grain yield in silage generally plateaus when grain moisture reaches 40% DM, but the grain does not always dry down at the same rate as the rest of the plant, so it's important to know the DM content of the whole plant at harvest. At between 40 and 46% DM, there can be problems with fermentation, leading to the silage going off quickly when opened. This can be counteracted by fine chopping (to a maximum of 20 mm) and adding urea at a 3% ratio to DM to create an ammonia-preserved feed.

Harvesting too late (>46% DM) is also problematic, as the straw will be too springy to compact. At this moisture, content yield is maximised, but the grain tends to be too hard for animals to utilise and will pass through the gut without being digested. There is also a greater risk of grain drop during harvest and feeding out. As silage quality components come from the grain, late harvesting can result in poor quality feed.

Other points to note:

- Applying a full-rate strobilurin-based fungicide at full flag leaf/head emergence will have the biggest impact on quality.
- All fertiliser must be on by GS 39 to avoid problems with fermentation.
- If baling, avoid barley or awned wheats, the heads of which can cause animal health issues.

For more information see Arable Update 208.

Herbage

Cocksfoot disease management

Over the past four years, FAR and SIRC have been conducting trials on management of downy mildew (*Sclerophthora cryophile*), a disease which in recent years has become a significant issue in cocksfoot seed crops, particularly in Canterbury. The disease is characterised by head bleaching and reduced seed yield. The causal organism for downy mildew is an oomycete, not a true fungus, so regular fungicides are often less effective; a more tailored approach is required. Products such as Phoenix® (500 g/L folpet) and Ridomil® Gold (40 g/kg metalaxyl-M + 640 g/kg mancozeb) have been found to be the most effective in FAR trials.

Foschek® (400 g/L phosphorous acid) also shows promise, and an additional trial was established during the 2024-25 season to investigate the optimal timings and rates. In the 2024–25 trials, Foschek® applied at 5 L/ha as part of integrated programmes with other oomycete-targeting fungicides further demonstrated its potential effectiveness. Further work is needed to confirm the most effective growth stage application timings for Foschek® in cocksfoot seed crops.

The disease is more severe when conditions have resulted in prolonged leaf wetness, so if you are in this situation, consider applying a control spray such as the ones listed above. If a fungicide is warranted, note that fungicide applications at ear emergence and flowering have been found the most effective in FAR trials.

It is also important to be aware of the risks of fungicide-resistant pathogens developing. This risk can be mitigated by rotating between different active ingredients and making sure to stick to label instructions regarding the number of applications allowed in one season.

Further reading:

- FAR Focus 16: Cocksfoot Seed Production
- Herbage update 83

Stem rust management

Grower experience so far this season, as well as FAR trials, have shown little evidence of stem rust. However, susceptible varieties (particularly turf ryegrass seed crops) will usually receive a robust fungicide programme regardless of risk. Depending on the cultivar, some of these will be receiving their second or third fungicide treatment at the moment. Risk periods for stem rust in ryegrass seed crops are triggered by dewy mornings and prolonged leaf wetness.

A stem rust risk assessment tool, which is available on the FAR website, as part of the weather platform (click on Pests and Diseases at the top of the page), can help you identify risk to your crop. The graph below shows an estimation of the risk of stem rust spore germination for the last nine days at Chertsey. Consider applying fungicides if crops are considered 'at risk'. Conditions which contribute to a ryegrass seed crop being at risk are:

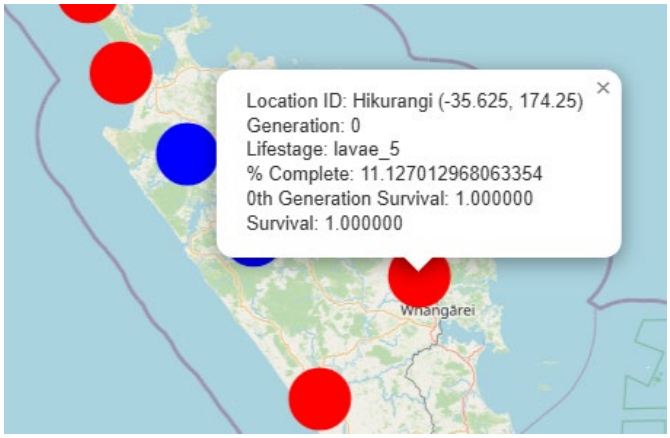
- Dewy conditions.
- The cultivar has susceptible genetics.
- The crop is past GS 32.
- A fungicide has not been applied in the last 14 days.

For more on this topic, please see pp30-35 of the ARIA booklet from last week.

Maize

Fall armyworm (FAW) update

As we move through the early part of the growing season, fall armyworm (FAW) has been identified across Northland and just into the Auckland region, as well as a small population in Waikato and unconfirmed reports in other North Island regions. But all reported populations remain well below economic thresholds. Most Northland larvae are at approximately instar 3 this week. A modelling tool we are validating suggests these Northland populations will reach instar 5 by about 3 December and begin pupation around 10 December.



Left: An example of the online modelling; the red are locations where we predict FAW to be 11% through instar 5 by 3 December 2025 (blue indicates 95% through instar 4). Please note there is variability as this is determined by weather forecasting.

Repeat observations from the same paddock will be helpful. Please continue to report any FAW you find. We also expect that FAW is much more widespread than the reports received indicate. Please walk your paddocks as often as possible.

A common question is why we have such a limited toolbox for FAW. The simple reason is that very few products are registered in New Zealand for this pest. Although we are seeing promising levels of natural control from beneficial insects such as *Cotesia ruficrus*, there have been cases in past seasons where economic thresholds were exceeded and insecticide use was required. Corteva's Sparta™ (spinetoram, a Group 5 insecticide) remains the only on-label product at present. It is effective when used under the right conditions. But, as with all insecticides, there are downsides.

Find out more at www.fallarmyworm.nz.

Crop status and side dressing

During the early growth stages, maize seedlings absorb nutrients and water from the seed and a small amount from the soil via the seminal or seed roots. At around growth stage V3, nutrients from the seed are mostly exhausted, and the nodal (permanent) root system starts drawing all the plant nutrients and water from the soil. It is at this stage that, provided soils are not compacted and roots haven't been hindered, nodal roots will come into contact with starter fertiliser.

Alongside determining if a post emergent herbicide is required, the next maize crop management phase is to consider N application side dressing. FAR has undertaken a considerable amount of research to develop good practice strategies and tools for nitrogen side-dressing; these include the DeepN soil test protocol, the AmaizeN calculator, and the Nitrate Quick Test.

Given the price of N and the contribution N fertilisers have on GHG emissions, in order to optimise nitrogen-use-efficiency a soil sample should be collected to a depth of 60 cm before side-dressing to determine the amount of plant available nitrogen in the soil. If soil type and yield zones are known within the field, representative DeepN samples should be collected by each soil type and yield zone. If these zones are not known, a standard sampling protocol should be used for the field, taking care to avoid areas of the field where animals may have congregated or other anomalies might have occurred. A Nitrate Quick Test or Min-N lab analysis can then be completed to determine the amount of available soil nitrogen, and from there, a nitrogen side-dressing plan completed. For more information, refer to the resources below.

- Soil nitrogen supply calculator
- Nitrogen: The confidence to cut back, FAR Focus 14
- The Nitrate Quick Test Mass Balance Tool and User Guide
- AmaizeLite – N calculator for maize
- Nitrogen use efficiency in maize

Oilseed rape

Preparation for harvest

The indeterminate growth of oilseed rape can make the crop a challenge to harvest. Timing is crucial to convert the potential of your crop into good yields. Three harvest methods are available with selection depending on a wide range of factors. Consult your field rep about what will be best for your crop.\

Windrowing allows the crop to even up so that the lower pods are able to be harvested with the upper ones. The seeds will usually reach a uniformity of moisture within 6-10 days of cutting. Losses from wind and hail are also reduced. Use when there is a large maturity variation in the crop.

Pushing gives similar yields to windrowing, and is useful in large paddocks. The plants remain attached to the roots, potentially improving grain fill and yield. FAR has some research results on this available here.

Desiccation is an option in areas where high winds are not a factor and on heavier soil types that keep the crop (or part of it) greener for longer. Desiccate when 70-80% of seeds in the middle pods have changed colour (past optimal windrowing stage). Harvest 10-14 days after desiccation.

Weather Updates

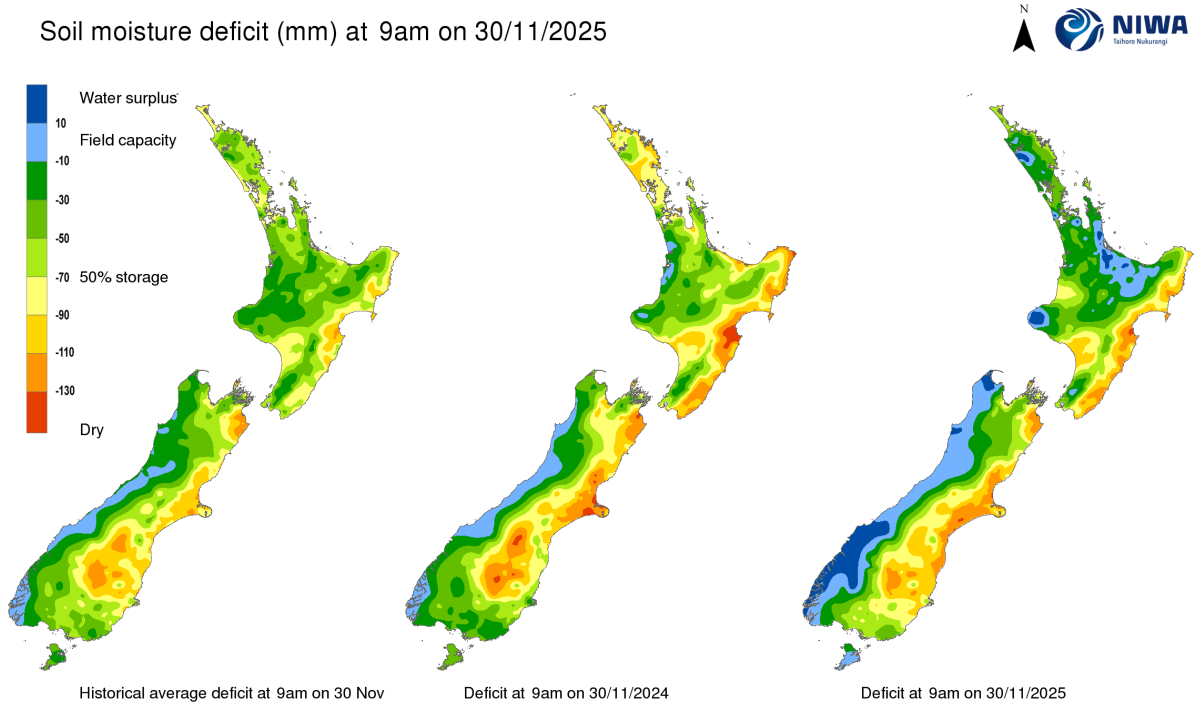
Long-term weather outlook

The coming summer will likely be a dry, hot one for most of the country, according to the summer outlook from ESNZ. Regional dryness will be a concern from mid-December into January, although the North Island has an increased likelihood of significant rain events. ESNZ also notes that there is more uncertainty than usual in the long-term forecast. February could be wetter than the rest of summer, especially in the North Island.

FAR weather tool

The FAR online weather tool is a great way to track weather patterns and to compare the current season's conditions with those of previous years. You can check it out here. Click on the link and select the weather station closest to you from the drop-down box at the top right of the screen. Please contact us if you have any queries about the tool, or suggestions on how to make it better.

Soil moisture data: see more from NIWA here.



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