

Edition 114 Friday 3 February 2017

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1 Stubble burning and smoke management – good practice

Stubble burning is an important management tool for control of weeds, pests and diseases in arable cropping rotations, and can be a relatively quick and cost effective way to prepare a paddock for the next crop. To ensure that the industry maintains the right to burn stubble and crop residues, good management practices for burning and smoke management should be adhered to.

Smoke management plans are required to be kept by the land manager, and should be able to be produced on request. Resource consents are not required for stubble burning, unless the property falls within the crop residue burning buffer areas around the Ashburton or Timaru townships. See link below to view exact boundaries.

Burning and smoke management plan template

FAR has developed a *Burning and smoke management plan template* based on the requirements listed in Schedule 3 of the Proposed Canterbury Air Regional Plan. A plan like this should be completed BEFORE each burn. The plan FAR has developed can be found in the forms section of the FAR website (see link below). You can print this form out and fill it in by hand, or save it to your computer and fill it out electronically. Remember, you must be able to produce a copy of the plan if requested by Environment Canterbury. Further information on burning crop residue can be found on the Environment Canterbury website (see link below).

The Federated Farmers – Ashburton District Council *Crop Residues Burning Code of Practice* contains useful information on good management practice around burning for all growers, no matter which council they fall under. It can be found on the Ashburton District Council website (see link below).

[Maps of crop residue burning buffer areas around the Ashburton or Timaru townships.](#)

[FAR burning and smoke management plan template](#)

[ECan outdoor burning rules](#)

[Ashburton District crop residue burning Code of Practice](#)

[Ashburton District crop residue burning conditions](#)

FOUNDATION FOR ARABLE RESEARCH

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2 Grain storage pests

As harvest approaches, it is important to ensure silos are properly cleaned and prepared for grain storage. Insects and pests in stored grain can be an issue in New Zealand, due to long storage periods and because our grain is often harvested at higher moisture contents than in many other countries. Storage pests have the potential to cause significant damage to grain either by feeding on the grain embryo, or through external damage allowing fungi to cause greater deterioration.

Sustainable Farming Fund Project

The first step of a three year MPI Sustainable Farming Fund project that FAR is undertaking in order to gain a better understanding of the frequency, distribution and severity of pests that attack stored grain in New Zealand has been completed.

Step one involved sampling of grain from 40 randomly selected farms in Canterbury. A management questionnaire was completed during the sampling of grain, which has identified a range of grain management strategies. These will be correlated to insect infestation once definitive identification is complete. This work is currently under way at Lincoln University.

This survey has uncovered further anecdotal reports that pirimiphos-methyl (Actellic) has become less effective at controlling pests in stored grain. Later in this project, live insects obtained will be used to conduct resistance testing to pirimiphos-methyl, and alternative control practices will be evaluated.

This project follows on from the voluntary survey that was conducted last year, where growers were invited to send in a sample of grain to be screened for pests. One or more insect or mite species were found to be present in 73% of grain samples submitted by farmers.

FAR would like to thank the growers who agreed to participate in our survey. We will be reporting on the Year 1 results as soon as all the data has been collated in late February.

Steps to consider for prevention of insect and pest infestation:

- Ensure silos are able to be closed properly and are in good condition (to avoid insects entering). Then seal them properly.
- Clean silos and surrounding areas, of old seed/grain. If previously stored grain was infested, an appropriate insecticide should be sprayed inside the silo inside prior to use.
 - Flying beetles are able to infest grain up to 2 km away. Ensure offal is dumped well away from uninfested grain, or bury/burn it. A small quantity of infested seed/grain can produce more than one million insects in a year!
- Maintain clean storage premises with occasional residual spraying of critical areas.
- Check that grain is free of insects before storing.
- Only store cool, dried seed.
 - Insects cannot develop if seed moisture content is too low.
 - Storage fungi grow at moisture contents above 14.5%, which results in faster grain or seed deterioration.

Good quality, dry and cool grain or seed can be safely stored for many months without any insecticide application.

Monitoring grain

Monitor grain regularly during storage. Setting up a regular monitoring and recording system, e.g. monthly, enables any changes in the temperature or moisture content of grain to be identified prior to a major problem developing and allows appropriate action to be taken. Insect and pest populations, and their damage, are likely to be less obvious in the early stages of storage, becoming more prevalent later.

- Inspect stores in the late afternoon, when insects are more active. The insects will accumulate near or on the grain surface.
- Monitor temperature in storage. Temperatures above 21°C favour insect activity, and above 27°C almost certainly indicates active insects. This monitoring can be done through the use of a temperature probe. Sample at the same points each time - the center and the sides of the silo, just below the surface of the grain.
- Grain moisture monitoring is also a good way to detect pests. Sample grain from just below the surface in the center and at the side of the silo, from the same points each time. An increase in the moisture content suggests insect activity or fungal growth.
- If temperature or moisture start to increase, aerating the silo with cool dry air should be the first action.
- In a situation where there is an increase in temperature and moisture, but no visible insects, there is a likelihood of mite or fungal infestation.

You have spent a lot of time and money growing it, so look after it in storage.

3 Grain recording in ProductionWise®

Keeping track of grain on farm and beyond is important for financial and quality assurance purposes. It's a job that can be made easier by using the *Grain* module of ProductionWise®, FAR's integrated online farm management system for New Zealand cropping farmers.

ProductionWise® *Grain* allows you to record silo-cleaning regimes, pesticides applied to grain, contracts, and the sale of grain. Any insecticides used for the cleaning of silos can be recorded, along with monitoring records from throughout the storage period. ProductionWise® provides a comprehensive record from paddock through to sale, resulting in a high level of traceability of the crop and grain/seed. The *Reports* module has the ability to generate an industry approved vendor declaration/traceability form covering treatments and actions from the paddock through to storage.

ProductionWise® is freely available to all FAR levy payers. Further information can be found at www.productionwise.co.nz or by contacting FAR on 03 345 5783.

4 Pre-harvest glyphosate reminder

Check grain contracts carefully for clauses around agrichemical use. Malting barley, cereal seed and some milling wheat contracts effectively exclude the use of glyphosate pre-harvest. Contact your company rep if you are unsure.

Internationally, consumer concerns about residues are driving calls for restrictions on the use of many agrichemicals. Between 2000 and 2006 sampling in the UK regularly found glyphosate residues in bread.

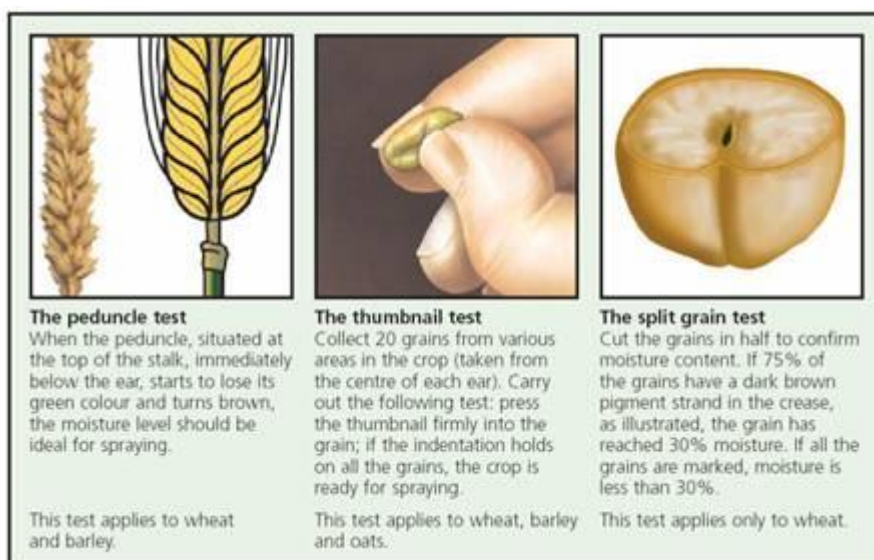
As glyphosate is commonly used in cereals pre-harvest to control weeds and to aid harvesting when crops mature unevenly, FAR is initiating a programme to investigate whether or not there are any issues with the use of this chemical in New Zealand cereal crops.

This season, FAR will set up pre-harvest plot trials in barley and wheat crops looking at the potential implications of glyphosate application timing and rate on residues. We will also take samples from pre-harvest treated crops with a range of different attributes to determine the possible influence of factors such as rolling country (where crops mature unevenly); slow developing cultivars (that senesce slowly at the end of the season) and crops with secondary tillering, on residues occurrence. In each of these examples, a proportion of the grain may still have a moisture content higher than 30% when the glyphosate is applied to the crop, meaning they will still be filling, thus potentially pulling the glyphosate into the grain.

Please follow the pre-harvest instructions for glyphosate. Below is the label instruction for Glyphosate 360 and a timing guide.

Glyphosate 360

Pre-harvest: barley, oats, peas and wheat - Apply to cereals 7-12 days before harvest when the grain moisture content is less than 30%. For peas, apply 7-14 days before harvesting when the pods have dried. Only peas for threshing should be treated and they should not be harvested within 7 days after treatment to allow the herbicide to translocate into the weed roots. Do not treat crops which will be harvested for seed or undersown crops including clovers as they may be severely damaged. Use up to 4 litres/ha depending on the specific weeds. Do not treat drought stressed plants. Not Roundup Renew.



Cereal harvest timing guide, courtesy of [Monsanto website](#)

5 Red clover case bearer moth

Red clover case bearer moth (*Coleophora deauratella*) was discovered in Auckland in October 2016 and this week it has been confirmed in a red clover crop in mid Canterbury. Reduced seed yields and damaged seeds from the same paddock last year, suggest it may have been present then as well.

Red clover growers are urged to inspect their crops for the presence of a small moth, typically 8 mm in width and to part open flowers to look for drill holes near the base of the floret. If you have any concerns or see small moths you can't identify, try to capture them in a jar and place it in a chilly bin with ice or in the freezer and/or contact FAR.

Crop inspection

Brown larva cases (see photo below) can sometimes be seen on the flower heads, and damaged flowers may be dark brown rather than the more usual tan colour (see photos below).



Case attached to clover floret (left) and healthy (tan) and damaged (dark brown) clover flowers (right).
Photo courtesy of MPI

The red clover case bearer has a high preference to red clover and is a different species to the case bearer that was common in white clover, especially during the 1970s. Two parasitoids that were released in the 1980s have been very successful and eliminated the case-bearer problem in white clover. While these same parasitoids are thought to be able to also control the red clover case bearer moth, the level of current populations are unknown.

FAR is working with MPI, Federated Farmers and other groups to understand more about this pest, how it might impact on New Zealand red clover crops and how to manage it. If you have any concerns about this pest in your crop please contact the FAR office.

6 Pea weevil update

To date 757 sweeps of 283 pea crops across New Zealand have been completed. No pea weevils have been detected outside the Wairarapa exclusion zone. A small number of crops in Canterbury remain on the monitoring list, and MPI estimate these will be completed by mid-February. MPI would like to thank all the farmers involved for their cooperation in this massive exercise. The learnings from the survey will be applied to improve the timing and efficiency of future surveys.

Meanwhile, in Wairarapa, trap crops have worked well, attracting pea weevils into the crops at all sites. The pea trap crops, with three varieties and times of sowing, were established in order to lure any weevils in the region into a small area where they could then be destroyed. Trap crops will be planted again next season, when we would hope to see fewer, if any weevils caught.

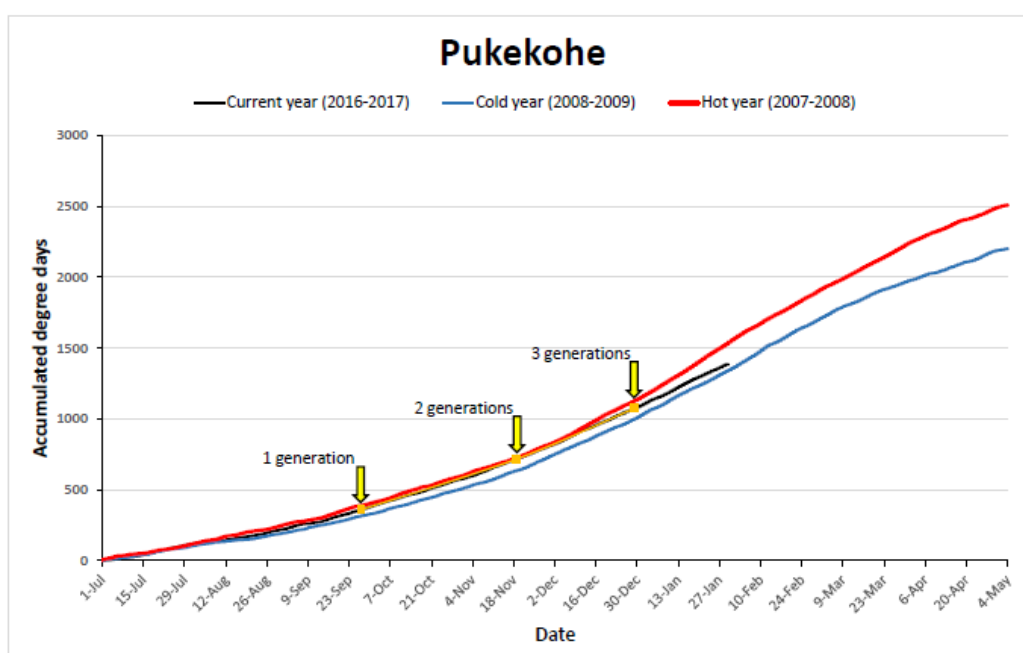
Alternative crop trials are in place at two sites in Wairarapa. One of these sites is hosting a field day next week (Tuesday 7 February). Further details in Events at end of this Crop Action.

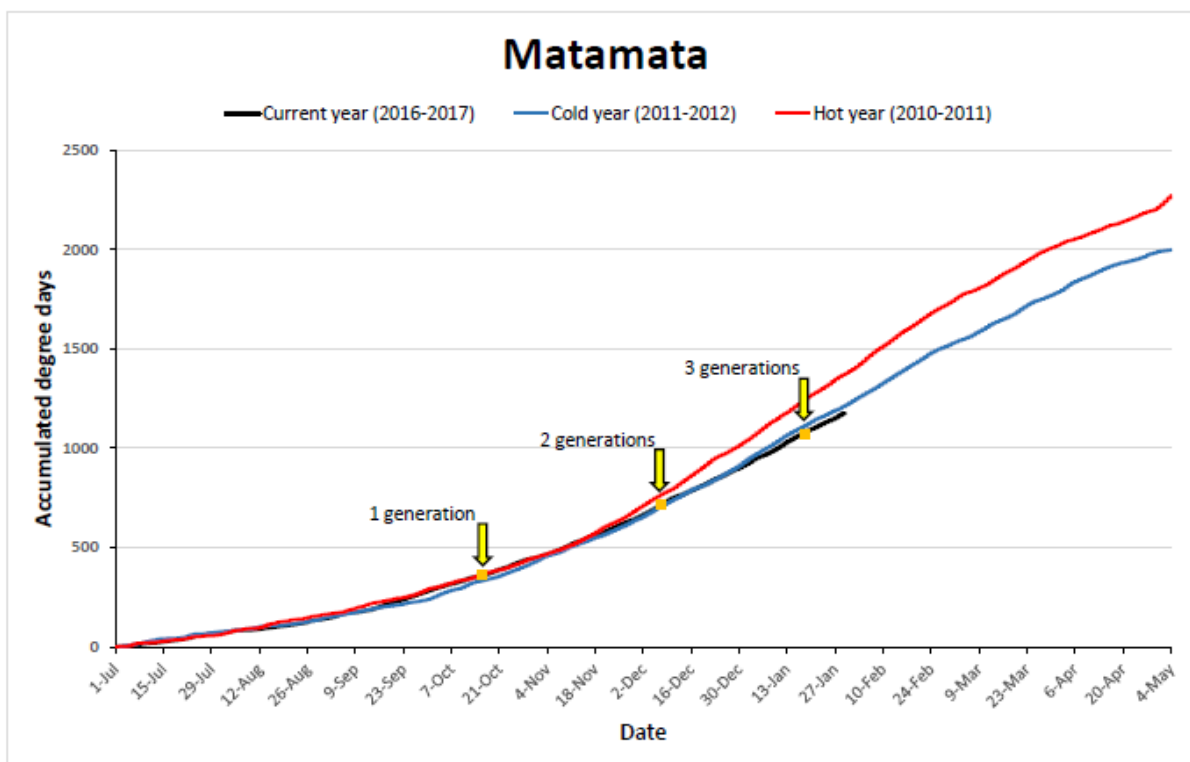
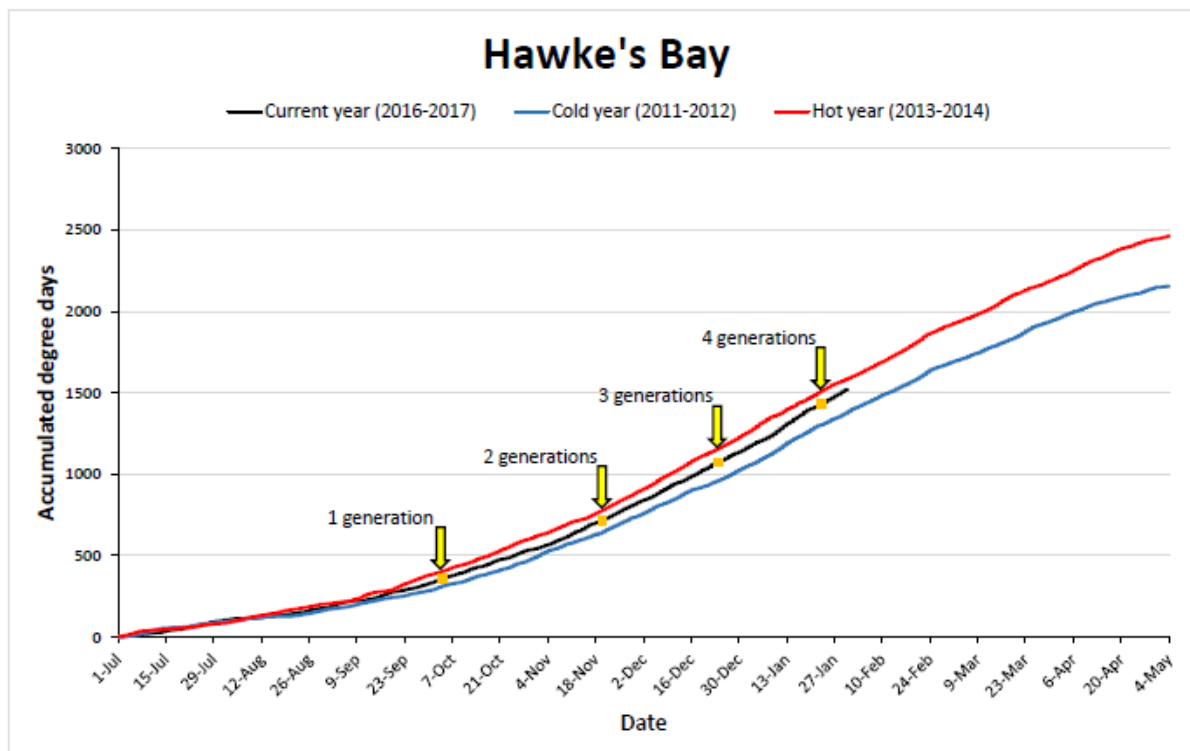
7 TPP and degree days

The following graphs show the accumulated degree days (DD) for Pukekohe, Hawke's Bay, Matamata, Manawatu, Mid-Canterbury and South Canterbury from 1 July 2016. The graph for each region also contains accumulated degree days for a hot and cold year in that region, to allow you to make comparisons with the current season. The number of TPP generations for the current season so far is indicated on the graph with a yellow arrow. Full information on how to interpret these graphs can be found on the [FAR website](#) or in [Potato Update 2](#).

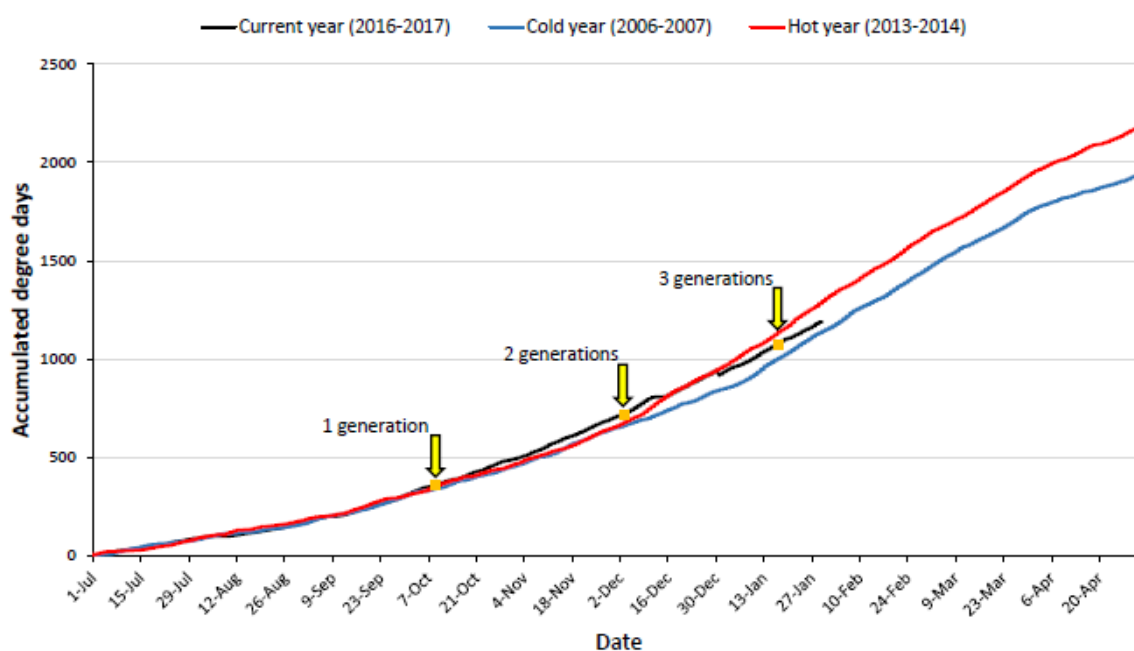
Remember:

- Psyllids are active throughout the year and therefore 1 July is an arbitrary starting point.
- It is important to be aware of other plants near your crop that can sustain TPP and act as a source of infestation. These include nightshade weeds, African boxthorn, poroporo but also volunteer potatoes.
- Since the psyllid research is a work in progress, we strongly advise you to use the degree day graphs in conjunction with crop monitoring using sticky traps and plant sampling. Crop monitoring provides valuable information on TPP arrival, population build up and the life stages present in your crop. See [Potato Update 1](#).

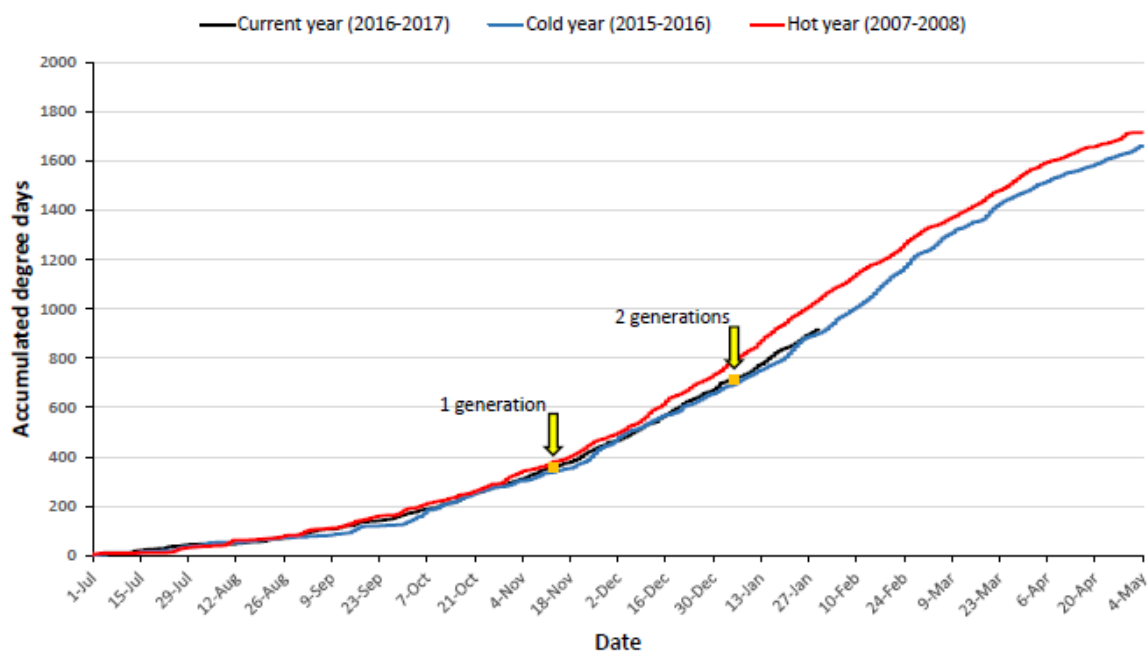


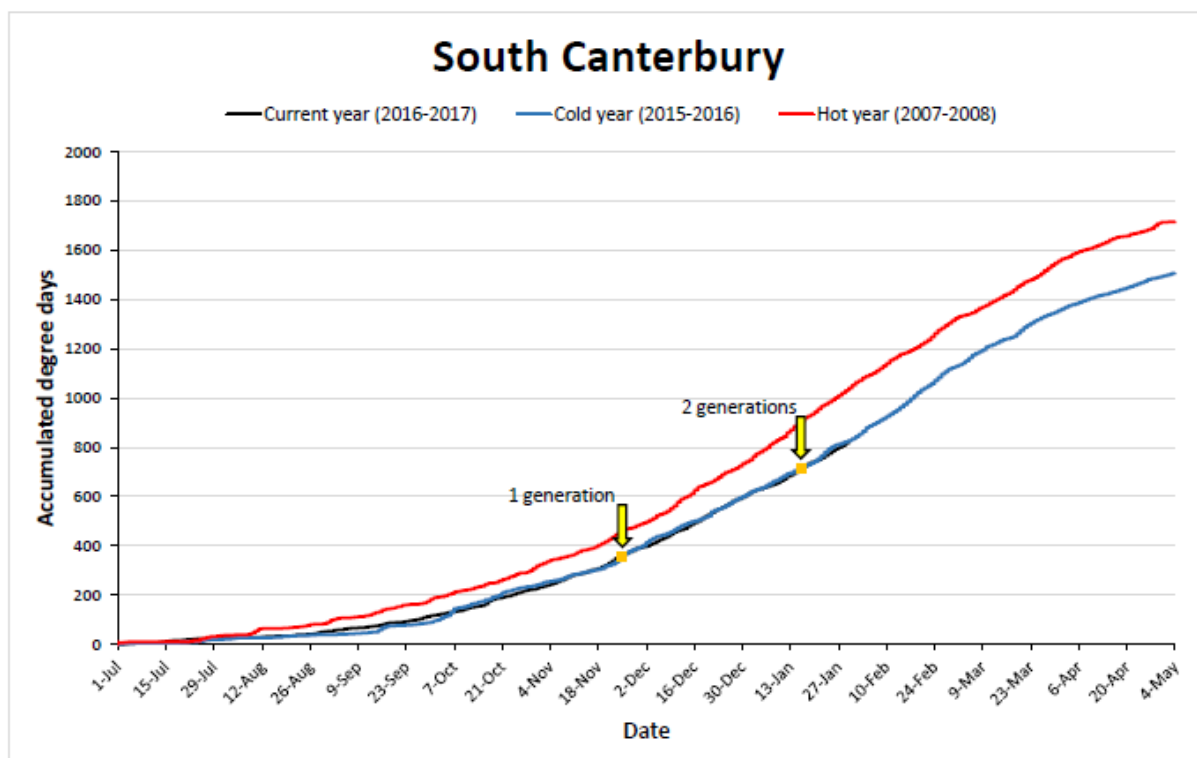


Manawatu



Mid Canterbury





8 Events

9.30-11.00am, Tuesday 7 February
Masterton

Pea weevil update and New crop options trial visit

Tuesday 7 February
9.30am – 11.00am

Courtesy of
Bas Groeneweg
37 Masterton Castlepoint Rd
Masterton

Join Nick Pyke from FAR to view and discuss a field trial investigating potential new crop options for Wairarapa growers; and Fiona Bancroft from MPI for an update on management of pea weevil including trap crop monitoring results to date.

For more information please contact the FAR office:
Phone: 03 345 5783 or email: admin@far.org.nz

We look forward to seeing you there.

1.30-3.00pm, Wednesday 8 February

Opiki

Precision agriculture in cropping and Potato research update

Wednesday 8 Feb

1.30pm – 3.00pm

Courtesy of Paul Olsen

561 Okuku Road, meet in yard.

For more information please contact the FAR office: Phone: 03 345 5783 or email: admin@far.org.nz

We look forward to seeing you there.

Speakers and topics

1.30pm

Outline of FAR/PNZ potato research for 2017 and TPP update. *Jen Linton, FAR*

2.00pm

Precision agriculture in arable and potato crops: yield mapping results. *Allister Holmes, FAR*

2.20pm

An update on precision agriculture technology and uptake on UK cropping farms. *Jim Wilson, SoilEssentials, Precision Farming Solutions, Scotland*

ADDING VALUE TO THE BUSINESS OF CROPPING

Diana Mathers from FAR will also speak at this event, providing an update on the GWRC Nutrient modeling project.

IPM in brassicas

9.00- 10am, Friday 24 February

Lauriston (full details to come).

This field day will be facilitated by Dr Paul Horne, IPM Technologies Pty, Australia. It will be the last field day as part of the FAR and Plant & Research Sustainable Farming Fund *IPM strategy development and demonstration for forage and seed brassicas* project, and will include discussion around an economic assessment comparing IPM and conventional management at the focus paddock sites.

Other topics will include:

- How to use IPM in seed and forage brassicas
- Beneficial insect identification
- IPM monitoring and decision-making
- Chemical options available
- Nysius damage

FAR Results Round Up meetings

9.00 – 11.00am, Thursday 6 April, **Templeton**

7.00 – 9.00pm, Thursday 6 April, **Ashburton**

7.00 – 9.00pm, Monday 10 April, **Timaru**

7.00 – 9.00pm, Tuesday 11 April, **Methven**

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