CHESTNUTS AUSTRALIA INC

BLIGHT UPDATE

- Agreement by CCEPP and NMG to undertake a 2018 Spring Survey
- CAI worked with Agriculture Victoria to develop the survey document
- CAI organized growers to assist with the survey
- Training session for 20 growers on the 10th October 2018
- Survey commenced on the 11th October and concluded in early November

SURVEILLANCE

- Industry volunteers will enhance surveillance staff numbers sufficiently to enable a longer examination period per host tree.
- Surveillance will target all chestnut properties within 1km of previous detections.
- Every host tree in a 5km radius of a location with high incidence will be examined.
- An extra year of surveillance will provide additional evidence for property freedom.

RESULTS

- **The expectation:**

  "A combination of low incidence of disease (estimated at 1:1,000), potential for infected trees and low likelihood of detection (estimated at 50%) indicates that examination of 2,000 trees should reveal at least one infection. Under this plan nearly 17,000 trees will be inspected. Consequently, there is a high probability that 8 to 9 infected trees will be detected if diseased trees are expressing symptoms."

- **The result**

  ONE infected tree in 14,933 trees inspected across 72 properties.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Area
IP1	Inf 81	Inf 7	A or C	A or C	A or C	A or C	A or C	Clear	Clear			Eurobin
IP2	Inf 122	A or C	A or C	A or C	A or C	A or C	Clear	Clear	Clear			Ovens
IP3	Inf 189	A or C	A or C	A or C	A or C	A or C	Clear	Clear	Clear			Ovens
IP4	Inf 189	A or C	A or C	A or C	A or C	A or C	Clear	Clear	Clear			Porpunkah
IP5	Inf 1	A or C	A or C	A or C	A or C	A or C	Clear	Clear	Clear			Ovens
IP6	Inf 12	A or C	A or C	A or C	A or C	A or C	Clear	Clear	Clear			Wandilo Growlers Ck
IP7	Inf 40	A or C	A or C	A or C	A or C	A or C	Clear	Clear	Clear			Ovens
IP8	Inf 2	A or C	A or C	A or C	A or C	A or C	Clear	Clear	Clear			Wandiligong
IP9	Inf 9	A or C	A or C	A or C	A or C	A or C	Clear	Clear	Clear			Ovens
IP10	Inf 1, 7	A or C	A or C	A or C	A or C	A or C	Clear	Clear	Clear			Morses Ck Rd
IP11	A or C	A or C	Inf 1	A	Inf 1	A or C	A or C	Inf 2				Morses Ck Rd
IP12	A or C	A or C	A or C	A	Inf 1	A or C	A or C	A or C	A or C	A or C	Clear	Myrtleford
IP13	A or C	A or C	A or C	A	Inf 1	A or C	A or C	A or C	A of C	A or C	Clear	Morses Ck Rd
IP14	Clear	Clear	Clear	Clear	Clear	A	Inf 1	A or C	A or C			Eurobin
IP15	Clear	Clear	Clear	Clear	Clear	Clear	A	Inf 2	Trees destroyed		Clear	Eurobin
IP16	Clear	Clear	Clear	Clear	Clear	Clear	A	Inf 3				Ovens

IP17 - 2018

- IP17
  - One infected tree – dead – removed – destroyed
  - Three other dead trees – removed – destroyed
  - One live tree – 50 metres from other trees – will be destroyed in the autumn by CAI
  - AFTER THAT IP17 will be clear of chestnut trees.

BLIGHT UPDATE

- Blight is still contained to the original outbreak areas and the existing IP's have very strong linkages to the original heavily infected orchards;
- There are no heavily infected orchards left and it is highly unlikely we will ever find large numbers of multiple active cankers in an orchard again;
- It is also therefore highly unlikely that blight will ever be spread organically again;

BLIGHT UPDATE

- The risk of blight being spread by manual pathways is very low given the high biosecurity awareness in the industry over the last 8 years.
- That there is no credible scientific evidence to change the current 2-year latency period for chestnut blight
- Given the high classification of the organism *Cryphonectria parasitica* that all parties agree that eradication of the disease within Australia is still the ultimate objective.

GOING FORWARD

- Maintain the eradication program with a modified response plan through to December 2019 as part of the shared responsibility.
- Maintenance of the current quarantine and restriction areas though to December 2019.
- Ongoing program of inspection of trees particularly around IP11, IP15, IP16 and IP17 and the removal of any infected trees.

GOING FORWARD

- Removal of infected trees to be undertaken/managed by the Lead Agency under an agreed and acceptable programmed designed and managed by the Lead Agency/Lead Industry and be cost shared under an agreed system.
- 2019 Spring surveillance under a slightly modified program based around the 2018 concept utilising the industry/lead agency partnership.
- Release of IP's 12, 13 and 14 based on the two years plus freedom.
- Acceptance that IP15 and IP17 while they are maintained in the 2019 survey are free of chestnut trees.

GOING FORWARD

- Community engagement and involvement program

  "Establishment of a program to educate and encourage private landowners to undertake a program of inspection, reporting and removal of feral or unwanted and/or poorly maintained chestnut trees. (Potentially funded through another environment-based funding program.)"

- That any single infected trees on commercial chestnut orchards not be covered by Owner Reimbursement Costs.

- Chestnuts Australia Inc to be able to access the industry EPPRD Levy to assist with the employment of a biosecurity/surveillance person. (Support from other parties to fund the position particularly in the first year to be considered.)

GOING FORWARD

- Implementation of a research project to consider chestnut blight latent period

  "Given the uncertainty of the latent period and the unique position we have in Australia where we have not had a high inoculum source for at least five years, we are in an extremely valuable and unique position to conduct research to help clarify the latency period of C. parasitica.

  Recent research in Africa on Chrysoporthe (Mausse-Sitoe et al., 2016) nicely demonstrated the endophytic ability of the fungus by collecting healthy branches from Myrtaceae trees, allowing those to gradually dry to stimulate sporulation. The authors found 39% of healthy trees were infected with Chryphonectriaceae.

  If we conservatively estimate that only 1% of chestnut trees in Australia are colonised by endophytic C. parasitica, a sample of 1000 trees should yield 10 positive chestnut blight samples

GOING FORWARD

- Implementation of a research project to validate LAMP as an identification tool.

  CAI have held discussions with Brendan Rodoni and Jacky Edwards, AgVic) and they believe that undertaking such work on Chestnut blight is feasible.

- Implementation of a research project to test the use of technology to undertake of methods of surveillance.

- Trial work on potential chemical controls:

  Chestnuts Australia Inc has discussed the concept of in vitro chemical testing with the senior SARDI pathologist, Dr Barbara Hall. The possibility is that SARDI could discuss and work with Agriculture Victoria on such initial assessments.


CHESTNUTS
AUSTRALIA Inc.

NUT ROT

CHESTNUT NUT ROT

- **The organism causing NUT ROT is *Gnomoniopsis smithogilvyi sp*.**

Biology and Management of Nut Rot

LOOK UP

- **Walk your orchard NOW and look into the trees.**
- **If you find burrs like this then there is a real chance they are infected with NUT ROT.**

These Burrs should be collected and destroyed.

MANAGEMENT

LOOK DOWN

- Walk your orchard and when nuts have dropped collect regularly.
- Chestnuts need to be harvested every day or two, depending on temperature.

COOL DOWN

- To maintain quality and maximize shelf life, chestnuts should be cooled as soon as possible after harvest to remove the ‘field heat’. This will also retain moisture within the fruit; while products are warm, they are losing water. Pulling cold air through the cartons or bins can greatly increase the rate at which products cool.

CUT – LOOK - MEASURE

- For each batch of nuts that you have just harvested, take out an agreed quantity, cut the nuts and assess for symptoms of nut rot. Record the information.

INDUSTRY STANDARD

- Cut open a large sample (~100 fruit) and check for signs of internal decay.

- If <5% of fruit actually have internal decay, then place the fruit in the cold room.

CUT – LOOK - MEASURE

IF YOU ARE GOING STRAIGHT TO MARKET - CUT AGAIN

- **Store a quantity in an open bag in the packing shed or the kitchen and 10 days after harvest cut and agreed quantity and assess for symptoms of NUT ROT. Record the information and asses any changes from the first cut.**

INDUSTRY STANDARD

- **Select a further large sample (~100 fruit), keep for a week at room temperature, then cut open and check again for signs of decay.**

- **If rates of internal decay are low (<5%), and fruit show no external signs of rots, then pack as normal.**

CUT – LOOK - MEASURE

ROAST AND CUT AGAIN

- **If nuts are displaying high levels of rots after 1 week at ambient then they clearly should *not* be sent to the market.**
- **Roast some nuts and again cut and check for NUT ROT. Assess and record.**

STORAGE

STORE COOL

- **After harvest and before processing and packaging, store the chestnuts at as close to 0°C as possible.**

AFTER THEY COME OUT OF THE COOL ROOM AND BEFORE THE NUTS ARE DISTRIBUTED THROUGH THE SUPPLY CHAIN - CUT AGAIN

- **Store a quantity in an open bag in the packing shed or the kitchen and 10 days after harvest cut and agreed quantity and assess for symptoms of NUT ROT. Record the information and asses any changes from the first cut.**

STORAGE

RE-COOL

- **During the processing and packing process the nuts will ‘warm-up’ SO after processing and packing RE-COOL.**

PACKAGING

PACKAGING

- Chestnuts sent to market should be mature, sound, clean, well formed and free of physical damage or rots and moulds.
- Chestnuts that have bird pecks or splits or are poorly formed, dried out or immature should be discarded.
- Nuts in bags if not maintained at as close to 0°C as possible will heat up as the nut transpires.
- Putting them in containers that do not breathe will result in the nuts sweating and heating up.

PACKING

INDUSTRY STANDARD

- **Pack only half pallets - maximum of 480 kg OR 48 x 10 kg bags**
- **Pack so there is an air gap in the centre**
- **Ensure your transport company stores and transports the packaged nuts at as close to 0°C as possible.**
- **Ensure the Market Agent or Retailer knows the product is coming**

MARKET AGENTS

MARKET AGENTS

- Will be rigorously checking consignments for temperature
- Will be cutting nuts for indications of NUT ROT

COMMUNICATE – AGREE – COMMUNICATE AGAIN

- UNDERSTAND AND OPERATE WITHIN THE HORTICULTURE CODE
- Communicate with your Market Agent and/or Retailer and agree upon the arrangements
  - TEMPERATURE ON DELIVEREY
  - PACKAGING
  - LEVEL OF KNOWN NUT ROT FROM YOUR TESTING
  - RETURN POLICY

RETAILERS

RETAILERS

- Retailers need to keep chestnuts refrigerated, either in a wall cabinet or on a flat but refrigerated shelf display.
- Past research has shown that some retail stores were not using refrigerated display units for chestnuts. As a result, chestnut temperatures varied quite dramatically across retailers from 5.7°C to 13.8°C

The Chestnut Industry recommends that all chestnuts displayed by retailers should be in or on refrigerated units/shelves.

WEBSITE

REFER TO THE R&D PROJECT REPORTS OF JENNY EKMAN FOR MORE INFORMATION

REFER TO THE CAI POSTER ON NUT QUALITY

- Quality Standards Pictorial Reference Guide
- Chestnut Quality Assurance Requirements

REFER TO THE CAI INFORMATION ON PACKAGING

- Quality Standards Guide - Packaging

REFER TO THE CAI POSTER ON COOL CHAIN

- The Chestnut Cool Chain

FOR MORE INFORMATION

www.chestnutsaustralia.com.au


CHESTNUTS
AUSTRALIA Inc.

PHYTOPHTHORA

- Chemicals - Agri-Fos 600

PER15259	Phosphorous acid / Chestnuts / Suppression of Phomopsis nut rot & Phtophthora Trunk & Root Canker 15-Jan-19 - Stem injection only for Phytophthora now covered by the Agri-Fos 600 Label with a 28 day WHP Other uses on the permit are not supported on the label extension	27-Feb-15	30-Jun-20	CAI

PHYTOPHTHORA

- **Agri-Fos 600 label**
  - STATES: NSW, VIC, SA, WA & TAS
  - TREATMENT: Stem Injection
  - RATES: Dilute 1 to 3 with water, then inject 20ml per meter of canopy

PHYTOPHTHORA

- **Agri-Fos 600**
  - Do not apply to trees under severe water stress or during very hot weather.
  - Apply trunk injection up to three (3) times per year , two (2) during the production (growing) season and one (1) post harvest.
  - WITHHOLDING PERIOD: Do not harvest for 28 days after application

RESEARCH REQUIRED

Work to be undertaken

- Disease project over multiple years for Phytophthora Trunk and Root Canker to get the claim supported.
- Also need to undertake the residue trials to get both treatments (foliar and Trunk) supported in the same season from a residue prospective.
- Trunk application use pattern was established over a few seasons (applied at root flush and 28 days after root flush).

PHYTOPHTHORA

- Ridomil

NEW label registration Syngenta Metalaxyl-M (Ridomil Gold) Phytophthora root rot and trunk rot Group 4 Fungicide	Requires generation of efficacy, residue, and crop safety data in chestnuts Eurofins ST17000. Contracted 30-Apr-2018 Due for completion 30-Nov-2020 AgVet Grant

PHYTOPHTHORA

- **Ridomil**

The use pattern being evaluated is a soil drench applied in Autumn post-harvest (pre leaf senescence) and Spring with active vegetative growth at various rates.

THANK YOU