**CHESTNUTS AUSTRALIA INC**

**FINAL REPORT:**

**PROJECT:** Soil and farming functions and management to address acidification and erosion

**GRANT CASE ID: 155-13977**

Project as part of the North East Healthy Community Grants – 2020/21

## INTRODUCTION

In the naturally high rainfall areas of NE Vic., acidification and erosion are normal interactions between soils and climate, however, often misunderstood in farming practices and the negative impact to the broader region landscapes. This project worked with farmers

- to understand soil acidification in the natural environment,
- how farming contributes to acidification and erosion, and
- within the context of tree crops investigated and educated growers to measure the impact and understand the scale, review practices that reduce negative impacts and improve farming practices, and
- in utilising several trial plots to visualise revegetation, soil ameliorants and farm practice change.

Soil health is the ability of the soil to function, providing a sustainable resource for economic social and environmental benefit. Risk associated with natural resource use in farming often goes un-managed until there is a problem. Improving soil health in this project, clearly define issues of management to be improved, and soil health practices to amend and practically improve soil health conditions for the local and broader catchment environment.

## OBJECTIVES

The broad objective of the project was built around theory, practical and demonstration to support **grower awareness and on-farm practice change** in soils management and included:

- Learning sessions continuing to improve grower understanding of soil functions, and drivers of pH and erosion, including lead-in and follow-up sessions on soil analysis and practices.
- Demonstration sessions which included soil pit and visual on-farm analysis, showing the results of soils analysis.
- Soil analysis including soil physical, soil chemistry and soil microbiology with detail sessions on using this information to assess and management risk.

- Trials installed in two locations (deep clay loams and river flat silts) and included both lime application using calculations from soil analysis data, and included seeding trials of dense ground cover species, and acid tolerant species of grasses to support orchard floor management.

In summary, the suite of project activities comprised the following:

- 1 field day
- 1 soil health demonstration activity
- 2 soil health trials
- 1 farmer training event
- 2 soil health workshops
- 4 x soil analysis

Due to the COVID-19 pandemic fulfilling some of the activities were difficult due to long periods of lockdown in Victoria.

Notwithstanding that the project was completed using modified methodologies which included Darren Cribbes, as Project Team Member: -

- working on site with the two growers and preparing and understanding of the sites and the soil issues.
- Undertaking soil samples and having the soil analysed.
- Utilising the results of the soil samples as examples within the presentations to growers.
- Preparing presentations that could be used at face-to-face presentations or through a webinar. In one case, November 2020, it was necessary to move from a face-to-face workshop to a webinar.
- Preparing YouTube presentations for wide distribution to growers within the three industries – chestnuts, hazelnuts and walnuts.

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The following is a summary of the activities and how they were achieved: -

| Activity | Achievement | Amendments | Going Forward |
|---|---|---|---|
| Field Day | Due to COVID restrictions the two planned field days that were linked with the November 2020 and February 2021 workshops, did not take place. | The Field Day activity did not occur due to COVID restrictions.<br><br>Instead, the training components, as they related to the field day, were built into the subsequent webinar (November 2020), the two YouTube videos (February 2021) and the Final Worksop (May 2021) | The Project Team will continue to present relevant field day events outside of this project |
| Soil health demonstration activity | Two soil health demonstration sites have been established – one at Myrtleford and | **This activity was completed.**<br><br>Unfortunately, due to COVID | The Project Team will continue to maintain these trial sites and use |

| | | | |
|---|---|---|---|
| | one at Stanley in NE Victoria.<br>The project officer has work and continues to work with the two growers on these sites utilising the results of the soil and microbiological tests. | restrictions it was not possible to visit these sites. | them as training 'facilities' outside of this project. |
| Soil health trials | As Above | **This activity was completed.**<br><br>Unfortunately, due to COVID restrictions it was not possible to visit these sites. | The Project Team will continue to maintain these trial sites and use them as training 'facilities' outside of this project. |
| Farmer training event | The Farmer training event was held 13th May 2021 in Stanley, Victoria.<br><br>Details of the event are outlined below in the report. | **COMPLETED UNAMENDED** | The Project Team will continue to present training events outside of this project. |
| Soil Workshops | Two Soil workshops were planned for November 2020 and February 2021.<br>Both were cancelled due to COVID-19 restrictions. | The November 2020 face-to-face workshop was transferred to a Webinar which was held on the 14th of November 2020. Details of the webinar are outlined below.<br><br>The February 2021 face-to-face workshop was presented as two YouTube videos which have been made available to some 215 chestnut, walnut and hazelnut growers through an e-mail blast and then place on industry websites | The Project Team will continue to present relevant workshop events outside of this project. |

| | | | |
|---|---|---|---|
| | | **While not face-to-face the two workshops are considered as completed.** | |
| Soil Analysis | Two by nutrient analysis and two by microbiological analysis tests were undertaken utilising the two trial sites.<br>The results were supplied to the growers to assist them in establishing new programs.<br>The results were used as 'case studies' within the project.<br>Copies of the material is attached as appendices to the Final Report | **COMPLETED UNAMENDED** | The Project Team will continue to support the two growers in utilising the information.<br>In addition, the 'case studies' will be used in further presentations. |

While the project could not undertake some of the physical components of the Project ALL the relevant topics were covered utilising activities, other than face-to-face, and as a result achieved all of the original objectives.

The preparation and use of webinars and YouTube videos have given the project team and the growers across the chestnut, hazelnut and walnut industries, greater access to information than was originally proposed.

While some of the face-to-face activities did not occur, this did not affect the budget allocations. In fact, producing some of the other communication tools were more expensive but the additional costs have been absorbed by the industry organisations.

All of the activities have been completed within the allocated budget.

## OUTPUTS

This project worked with farmers to:

- understand soil acidification in the natural environment, and
- how farming contributes to acidification and erosion, and
- within the context of tree crops investigate and educate growers to measure the impact and understand the scale, and
- review practices that reduce negative impacts and improve farming practices, and
- undertake several trial plots to visualise revegetation, soil ameliorants and farm practice change.

Innovation provided through this project included the use of:

- Soil microbiology analysis for growers to observe the range of influence soil management can impact
- Using two different lime calculation analysis to determine lime requirements. Application impacts were to be measured at the end of the project to show results.

The program as presented, provided a basis for growers to observe and follow-up within the industry group. It provided written resources as learning materials and trial outcomes useful for implementing the practices.

Due to restrictions in place from Government regarding COVID-19, event and delivery program changed from the project brief.

We undertook the delivery of the planned events by webinar (recorded and placed on the website for access) and a face-to-face event.

Due to reduced face to face meetings, we focussed on a slightly simpler delivery message but covered off on the following:

- Soil basics of chemistry, physics and biology, and how these relate to soil performance and potential soil deterioration in modern farming
- Soil acidity – a detailed discussion about how it occurs and management options
- Soil erosion – discussion regarding risk and environmental impact, utilising plants species to manage landscapes

## SPECIFIC OUTPUTS

1. **General Communications**
   While the project was commissioned with Chestnuts Australia Inc. the project involved growers from the following industry organisations:
   - Chestnuts Australia Inc.
   - Australian Walnut Industry Association Inc.
   - Hazelnut Growers of Australia Inc.

   Through these three groups some 215 growers received all the relevant notifications and information:
   - Hazelnut Growers of Australia Inc - 55 members
   - Australian Walnut Growers of Australia Inc – 75 members
   - Chestnut Growers of Australia Inc. – 85 members

2. **Soil sampling on grower properties**
   Two grower properties were select within the North East Catchment area to use as sample trial sites. One was on the lower plains of the Ovens Valley will the second one was in the high country at Stanley.

   Soils samples were taken and tests undertaken. The results of the soil tests were supplied to the individual growers and the results used within the training sessions.

   The information allowed the project team to:
   - highlight the difference in soil types,
   - highlight the specific soil issues, and
   - offer solutions

   ***The results from the two soil samples are attached as separate files to this final report as Appendix A and Appendix B.***

   ***The analysis as it relates to Nitrogen was presented in a specific report to each grower and are attached as separate files to this final report as Appendix C and D.***

3. **Grower sessions**
   One of the components of the project was to organise and conduct a number of field sessions. The following are the events planned, held and/or cancelled due to lockdown:
   - 14th November 2020 – via Zoom – 31 attended
   - 13th February 2021 – cancelled due to COVID lockdown – had 45 people registered
   - 13th May 2021 – Face-to-face session – 16 attended.

## NOVEMBER WORKSHOP.

The following is the notification provided to the three industry organisations and sent to growers in relation to a Webinar style session rather than a face-to-face session.

"Dear HGA Member,

**RE: SOILS WORKSHOP – ZOOM SESSION**

Chestnuts Australia Inc (CAI) applied and received a small grant from the NE Catchment Management Authority to undertake a Soils project based in NE Victoria. While the application was made by CAI the project is open to Chestnut, Hazelnut and Walnut growers.

Attached is a leaflet detailing the project.

Due to restrictions on gatherings still in place, we have decided to take the initial soil workshop online and deliver it in a shorter time frame.

We will introduce the function of soils through our **Transition to Soil Health framework**, which will lay the ground for a review of soil acidity and soil erosion.

Included in this session will be the

- review of soil analysis results from two properties and
- work through indicators for decision making regarding management options, and nutrition.
- several additional analysis not normally included will be discussed including buffer pH, and a full analysis of the biological nitrogen cycle in soils.

We expect to be in a better position regarding gathering for a Field Day in February 2021, for a closer look at one site, a more detailed discussion, and practice several easy-to-use soil tests such as pH, $CO_2$, aggregation, and discuss the limitations and advantages of these kits.

**Please register your interest by return e-mail so that the Zoom details can be circulated to participants who have registered to attend this coming Wednesday.**

Regards,

Trevor
Trevor M Ranford
Communications Officer
Hazelnut Growers of Australia Inc.
Mobile: 0417 809 172

***The promotion leaflet for the November webinar is attached as Appendix E to this report.***

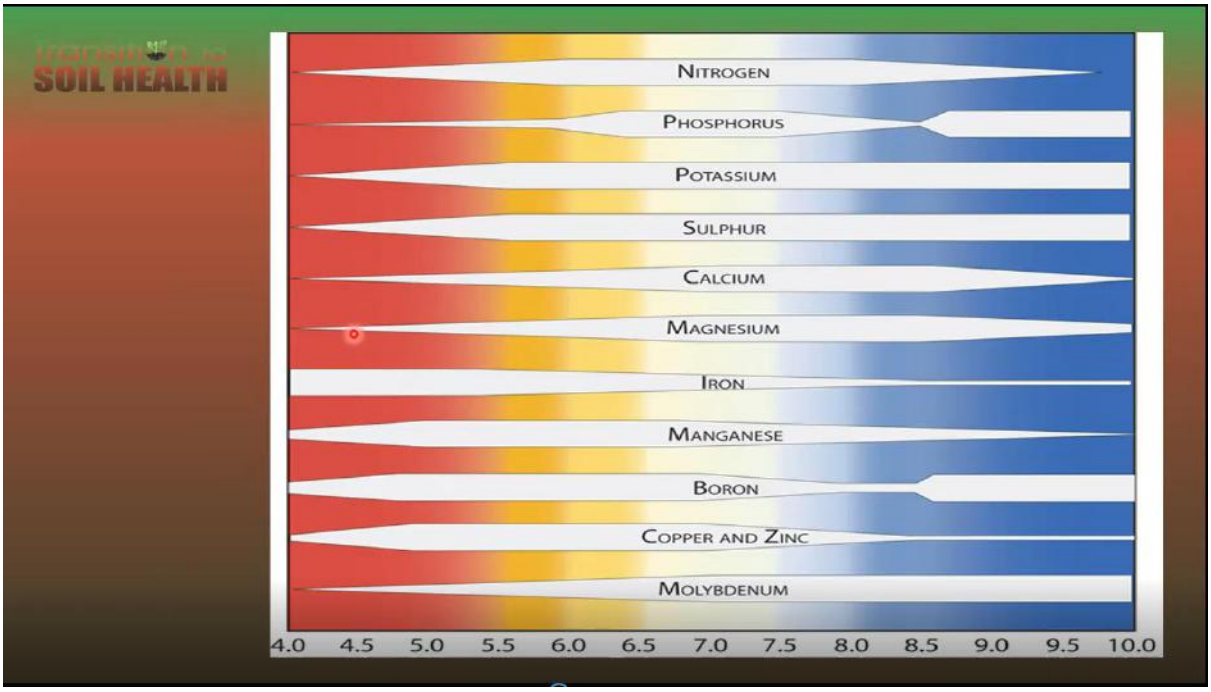
The list of participants of the Webinar are as follows: -

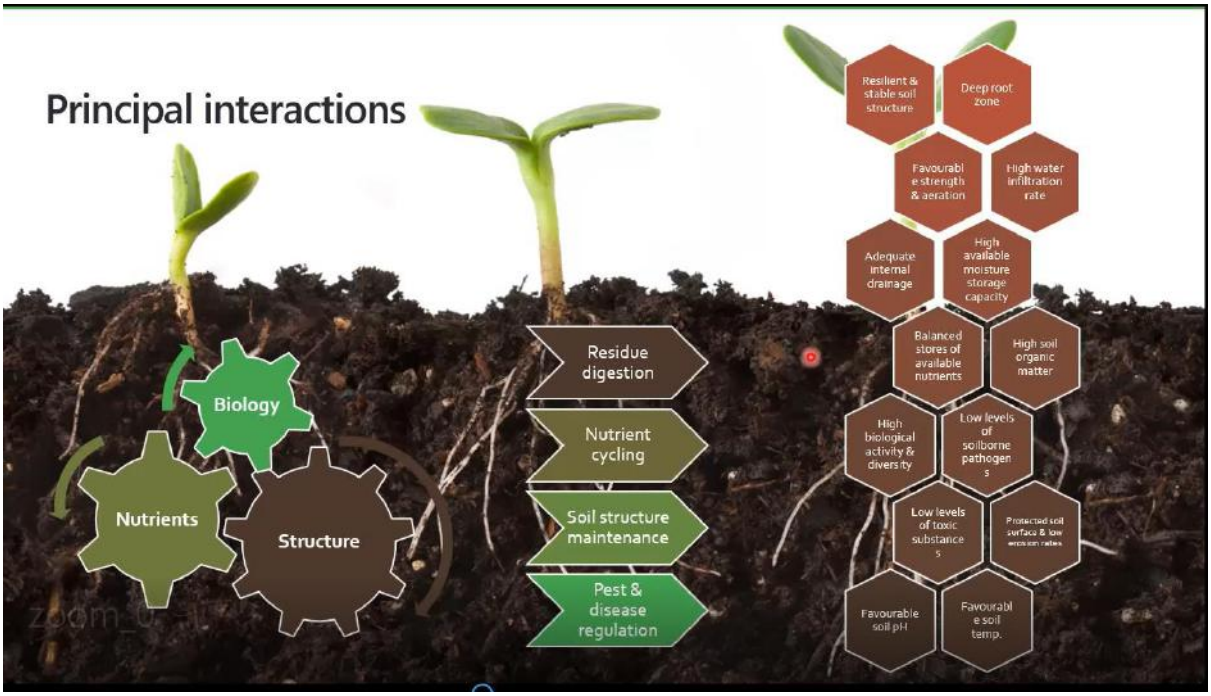
| PROJECT | | NECMA SOIL PROJECT | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |
| EVENT | | SOILS WORKSHOP - ZOOM SESSION | | | | |
| | | | | | | |
| DATE: | | 14th November 2021 | | | | |
| | | | | | | |
| CHESTNUTS | | HAZELNUTS | | WALNUTS | | OTHERS |
| Joey Costantino | | David Crea | | David Woodhouse | | Jason Lewis |
| Tracy Kamens | | Shireen Baguley | | Michael Burston | | Jessica Fearnley |
| Kim Forge | | Owen McCarron | | Philby Biggg | | Trevor Ranford |
| Richard Moxham | | Sally Robbins | | Wayne Spradbury | | Tanya Edwards |
| Alison Saunders | | Valerie Stewart | | Hein van Kralingen | | |
| Michael Brain | | Mick Simpson | | Philip Farnel | | |
| David McIntyre | | Darren Baguley | | Joe Sebire | | |
| Luciano Cester | | | | Roger Sutherland | | |
| John Morton | | | | | | |
| Josetta Gatford | | | | | | |
| Georgie Gavin | | | | | | |
| Greg Stroud | | | | | | |
| | | | | | | |

Copy of the opening slide from the Zoom session


Screen shot of some of the participants on the Zoom session

Some slides from the webinar that was conducted over 110 minutes.



## MAY 2021 WORKSHOP

The following is the notification provided to the three industry organisations and sent to growers in relation to the face-to-face session.

Dear HGA Member,

**RE: FINAL SOILS WORKSHOP – THANKS TO THOSE WHO HAVE REGISTERED – REGISTRATION IS ESSENTIAL**

Due to the cancellation of the Soils workshop in February as a result of the COVID lockdown we have organised another date for the FINAL Workshop.

**DATE: Thursday 13th May 2021**
**TIME: 8:30 am to 12 noon**
**VENUE: Stanley Hotel**

Attached is the Workshop notification and Registration Form.
Please register early to avoid missing out as there may be restrictions on numbers based on COVID requirements.

Regards,
Trevor
Trevor M Ranford
Executive/Communications Officer
Hazelnut Growers of Australia Inc.
Mobile: 0417 809 172

***The promotion leaflet for the May 2021 Workshop is attached as Appendix F to this report.***

The list of participants of the Workshop are as follows: -

| | | | | | |
|---|---|---|---|---|---|
| **PROJECT** | | **NECMA SOIL PROJECT** | | | |
| | | | | | |
| **EVENT** | | **SOILS WORKSHOP - ZOOM SESSION** | | | |
| | | | | | |
| **DATE:** | | **14th November 2021** | | | |
| | | | | | |
| Trevor | Ranford | | All Nuts | | |
| Darren | Cribbes | | Chestnuts | | |
| Dave | McIntyre | | Chestnuts | | |
| David | Crea | | Hazelnuts | | |
| Michael | Burston | | Walnuts | | |
| Tara | Berry | | Hazelnuts | | |
| Steve | Arnold | | Hazelnuts | | |
| James | Aston | | Hazelnuts | | |
| Christina | Aston | | Hazelnuts | | |
| Joe | Sebire | | Walnuts | | |
| Tanya | Edwards | | Chestnuts | | |
| Elke | Jasper | | Chestnuts | | |
| Di | Thomas | | NECMA | | |
| Anna | Lonergan | | NECMA | | |
| Simon | Muller | | NECMA | | |
| Luke | Mitchell | | Walnuts | | |


**WORKSHOP PRESENTATIONS:**

The presentation slides have been made available to the growers who were in attendance and subsequently distributed to all three industry grower lists.

***A copy of the presentation slides is attached as a separate file as Appendix G to this report***

**OVERVIEW OF THE SESSIONS:**
The following is a broad overview of the topics covered in the sessions and as presented by Darren Cribbes, conNEXUS global Pty Ltd**:**

**Soil Acidity and Erosion**
Throughout North East Victoria, increasing farm diversity and activity may be increasing risk of soil acidity and soil erosion, impacting on agricultural production and environmental value. Chestnuts Australia Incorporated, in cooperation with conNEXUS global and Trevor Ranford, have been conducting a demonstration project with funding from North East Catchment Management Authority aimed to raise awareness of soil acidity and erosion and to assist growers identify and reduce these risks to maintain and improve agricultural and environmental qualities.

Included in this project were numerous soils analysis, demonstration sites, and presentations covering these topics in more detail. Two local service providers contributed to the project: -

- Native Seeds providing seed for small plot demonstration sites at the two grower sites, and
- TAFCO Rapidfert contributed limestone and spreading services for small demonstration sites.

**Soil Health Context**
Soil health is the ability of the soil to function, providing a sustainable resource for economic, social and environmental benefit. With a soil health context in this project, we defined constraint issues of acidity and erosion, and worked on how to practically improve soil health conditions for the local and broader catchment environment.

Soil health relating to acidity and erosion relates to the potential for change in the soil environment that contributes to increasing acidity or loss of soil due to erosion. Practices on farm that contribute to either of these impacts require to be measured, understood and managed.

Nitrogen form, for example, has an impact on acidification of soils. Use of ammonium-based nitrogen fertiliser will increase acidity more so that a nitrate-based product.

Salinity in soils contributes to a decline in aggregation predisposing small soil particles being more readily moved during rainfall or irrigation events.

Removal of nutrients in the harvested crop such as calcium, further exacerbates the decline in soil health and contribute to acidity and erosion.

**Acidity and pH**
pH is the measure of acidity in soil water and measures hydrogen (H). It is best measured in a laboratory as part of your regular soil testing. It is recommended you request Sikora Buffer pH. This is used to calculate the correct amount of lime to apply in acid soils.

The soil pH scale is logarithmic. A whole number is 10 times larger or smaller than the one next to it. If a soil has a pH of 7.0 and this pH is lowered to pH 6.0, the acid content of that soil is increased 10 times. If the pH is lowered further to pH 5.0, the acid content becomes 100 times greater than at pH 7.0. The

logarithmic nature of the pH scale means that small changes in a soil pH can have large effects on nutrient availability and plant growth. It is important to recognise this, and your agronomist will advise you on methods to maintain good soil pH.

pH is also a lag measure, it is a result of environment, weather, management and crop. When reviewing your soil test, less focus on the pH, and more focus on how it got to where it is, is way more important.

Over time, soil tends to decrease in pH. This process is acidification and is driven by the loss of cations calcium, magnesium, potassium, sodium, leaching of nitrate and the addition of acid-forming cations.

Acidity itself is not responsible for restricting plant growth. Instead, biological processes favourable to plant growth can be negatively affected by acidity.

Soil pH will vary at different depths, referred to as stratification, and provides quite a challenge to amend this issue as the ameliorant requires to.

Nutrient availability changes with soil pH, which is one important aspect for growers to manage. As acidity increases, some of the elements such as aluminium become more soluble and impact root health, and plant growth.

**Buffer pH**
Buffer pH is the result after the lab has added a liming material. In this test, a chemical mixture called a buffering solution is added and functions like extremely fast-acting lime to measure the soils natural capacity to resist change. Too determine a lime recommendation, the laboratory looks at the difference between the original soil pH and the ending pH after the buffering solution.

**Acidity: Key Points**

- pH is a Master variable
- effects chemical, physical, and biological properties of soils.
- Nutrient availability (optimum pH for most crops is 5.5 - 7), lower pH decreases availability of essential nutrients
- Metal toxicity and solubility e.g., Al toxicity at pH <5.5 (also Mn solubility and toxicity)
- Microbial activity (especially important in the N cycle)

**Erosion**
Erosion is a natural process and is exacerbated by practices such as land clearing, overgrazing, and tillage. From a grower's perspective, erosion removes the most fertile part of the topsoil holding plant nutrients and soil organic matter. The main agent of erosion are water, wind and gravity.

**Water erosion**
The North East regions high rainfall creates a particularly vulnerable environment to water erosion. Current rates of erosion by water across much of Australia now exceed soil formation rates.

The latest assessment concluded that soil erosion by water in Australian cropping regions is still at unsustainable rates, but there are large uncertainties

about the time until soil loss will have a critical impact on agricultural productivity.

Environmental impacts of excessive sedimentation and nutrient delivery on inland waters, estuaries and coasts are already occurring.

The key to controlling soil erosion by water is maintenance of a protective cover such as plants as ground cover, crop litter, and mulch on the soil surface.

*Caption – native grass such as Microleana is being demonstrated in chestnut trees near Stanley, VIC. This planting has had little preparation, is under deep shade, and appears to be thriving. A lot to learn about the use of native grasses in this environment to protect soils.*

**Splash erosion**
Splash erosion is the first stage of the erosion process. It occurs when raindrops hit bare soil. The explosive impact breaks up soil aggregates. The particles block the spaces between soil aggregates, so that the soil forms a crust that reduces infiltration and increases runoff.

**Sheet erosion**
Sheet erosion is the removal of soil in thin layers by raindrop impact and shallow surface flow. It results in loss of the finest soil particles that contain most of the available nutrients and organic matter in the soil. Soil loss is so gradual that the erosion usually goes unnoticed, but the cumulative impact accounts for large soil losses.

Vegetation cover is vital to prevent sheet erosion because it protects the soil, impedes waterflow and encourages water to infiltrate into the soil. The surface water flows that cause sheet erosion rarely flow for more than a few metres before concentrating into rills.

**Rill erosion**
Rills are shallow drainage lines that develop as surface water concentrates in depressions or low points in the landscape

**Gully erosion**
Gullies are channels deeper than 30cm that cannot be removed by normal cultivation. They can be spectacular to look at but over time actually lose less soil than sheet and rill erosion. Gullies occur when smaller water flows concentrate and cut a channel through the soil.

**Erosion: Key Points**

- Effects on environmental quality and productivity
- Loss of soil organic matter (SOM), clay, and nutrient reduces productivity
- Formation of rills and gullies impacts management.
- Sedimentation in waterways
- Delivery of nutrients to surface water impacting water quality

**Bibliography**

Bui EN, Hancock GJ, Chappell A & Gregory LJ (2010). *Evaluation of tolerable erosion rates and time to critical topsoil loss in Australia*, CSIRO Sustainable Agriculture Flagship, Canberra.

Bartley R, Croke J, Bainbridge ZT, Austin JM & Kuhnert PM (2015). Combining contemporary and long-term erosion rates to target erosion hot-spots in the Great Barrier Reef, Australia. *Anthropocene* 10:1–12.

## 4. Video Presentations

To cover the situation relating to face-to-face meetings the Project Team prepared two videos that were sent to members via an e-mail blast and then up-loaded onto each industry website.

In 2020/21 Chestnuts Australia in conjunction with North East Catchment Management Authority (NECMA), Connexus Global and Trevor Ranford undertook a soil project with chestnut growers. Here are parts one and two as delivered by Darren Cribbes.

**Part 1 – NECMA Soil Acidity/Erosion Project**
https://youtu.be/LxXZXguCb-0

**Part 2 – NECMA Soil Acidity/Erosion Project**
https://youtu.be/EMz86t33pVA

The following is a copy of the e-mail distributed to the three industry members:

"Dear AWIA Member,

As you hopefully are aware walnut growers were invited to participate in the Soil health community project that was funded by the North East Catchment Management Authority and managed by Chestnuts Australia Inc.

Many of you planned to attend the Farm Walk session that was due to be held on the 13th of February 2021 but was cancelled due to the 5-day Victorian lockdown.

Darren Cribbes as the Project Officer has prepared to webinar sessions and the details of them are as follows: -

**Part 1 – NECMA Soil Acidity/Erosion Project**

https://youtu.be/LxXZXguCb-0

In 2020/21 Chestnuts Australia in conjunction with North East Catchment Management Authority (NECMA), conNEXUS global PTY LTD and Trevor Ranford undertook a soil project for nut growers – chestnuts, hazelnuts and walnuts. Here is part one delivered by Darren Cribbes.

**Part 2 – NECMA Soil Acidity/Erosion Project**

https://youtu.be/EMz86t33pVA

In 2020/21 Chestnuts Australia in conjunction with North East Catchment Management Authority (NECMA), conNEXUS global PTY LTD and Trevor Ranford undertook a soil project for nut growers – chestnuts, hazelnuts and walnuts. Here is part 2 delivered by Darren Cribbes.

The two YouTube videos will be uploaded onto the AWIA website in coming days.

Enjoy the information and hopefully the learning experience. We will endeavour to maintain the theme as part of future events.

Regards and all the best with harvest.

Trevor
Trevor M Ranford
Industry Development Officer
Australian Walnut Industry Association Inc
Mobile: 0417 809 172"

## 5. Direct grower participation

As indicated above some 215 nut growers were made aware of the project and received regular communications from the Project Team via the relevant industry organisations.

As the report highlights two growers within North East Victoria participated in the project by:

- Making their properties available for grower visits (not possible due to COVID but will be included as part of industry's ongoing and future events)
- Supplying soil samples for testing, and
- Allowing their results to be included within the grower presentations as practical examples from within the region

Also as detailed above a total of 47 participants attended the two webinar/workshop sessions (31 for the webinar and 16 for the workshop) and a further 45 were booked for the February 2021 Farm Walk that was cancelled due to a COVID-19 lockdown.

## 6. General Communications

The following are a list of dates of e-mail blasts to growers:

- 6th November 2020 – Nut Soils Workshop – 14th November 2020
- 2nd February 2021 – February Farm Walk update
- 8th March 2021 – Soil acidity/Erosion Project YouTube Video notification
- 24th April 2021 – Final Soil Workshop notification
- 7th May 2021 – Reminder of Final Workshop

In addition, articles were placed in relevant industry newsletters and within the Australian Nutgrower magazine.

## WHERE TO FROM HERE:

### CHALLENGES:

The major challenge for the project was in relation to the COVID-19 pandemic and the number and length of lockdowns that occurred during the project period.

Two of the planned face-to-face meetings were either moved to a Webinar format or cancelled completely.

The November 2020 session became a webinar and to replace the February 2021 session YouTube videos were produced.

While property visits were not possible the project officer maintained regular linkages and meetings with both the property owners, advised them on their situations, collected soil samples and undertook analysis of the samples.

The results of the soil samples were used as examples during the webinar, YouTube presentations and the Workshop session.

### IN THE FUTURE:

The Project Team will continue to focus on the relevant components of this project and utilise them across the next twelve months within industry activities (subject to COVID situations).

Activities being considered include: -

- Ongoing field work with the two grower participants.
- Industry visits to the grower field sites (linked to industry activities when possible).
- Development of additional YouTube videos on specific topics like pH, native grasses, utilisation of lime and microbiological activities within the soil.
- Additional follow-up webinars.
- Where requested one-on-one grower visits.
- Development of fact sheets with an initial one utilising the material covered in the ‘Overview of Session’ above.
- Maintaining the ‘Transition to Soil Health’ as a topic for future industry workshops, field days and industry conferences.

## APPENDIX A: Grower 1 soil analysis results

***Attached as separate files to this final report***

## APPENDIX B: Grower 2 soil analysis results

***Attached as separate files to this final report***

## APPENDIX C: Grower 1 - analysis as it relates to Nitrogen

***Attached as separate files to this final report***

## APPENDIX D:  Grower 2 - analysis as it relates to Nitrogen

***Attached as separate files to this final report***

**APPENDIX E: Grower notice for the November 2020 webinar**

## Soil Health and Management to address Soil Acidification and Soil Erosion

# Your invitation to learn

***North East CMA*** *is supporting growers to better understand soil health and identify the key landscape issues of soil acidification and soil erosion as part of the NECMA Soil Management Strategy*

*Including a number of informative workshops and practical skills exercises, this project will undertake a range of soil analysis, and trial plots on Stanley red mountain soils and Myrtleford River Flat soils. All information collected will be available to members and guests and openly discussed*

**In the naturally high rainfall areas of NE Vic., soil acidification and erosion are normal interactions between soils and climate, however, often misunderstood in farming practices and the negative impact to the broader region landscapes.**

Using our **Transition to Soil Health** framework, we will equip growers with improved skills to identify and manage acidification and soil erosion in NE BVIC Landscapes

**Initially the Project Team had planned a face-to face Soils Workshop but now this will be a Zoom session to be held**
**ON: Saturday 14th November 2020**
**TIME: Between 11:30 pm – 1:00 pm - Soils Workshop –**
**PRESENTER: Darren Cribbes – Connexus Global**
**Hazelnut, Walnut and Chestnut Association Members *Free***

Register your expression of interest TODAY! To find out more contact us at sahort@bigpond.com and we will then forward you the Zoom log in details.



**APPENDIX F: Grower notice for the May 2021 Workshop**

# Soil Health and Management to address Soil Acidification and Soil Erosion

# FINAL WORKSHOP

***North East CMA is supporting growers to better understand soil health and identify the key landscape issues of soil acidification and soil erosion as part of the NECMA Soil Management Strategy.***

Using our Transition to Soil Health framework, this final workshop will address local soil concerns of acidification and erosion, with detailed soil analysis from local properties to discuss interpretation and development of on-farm practices to manage landscape health and farm productivity.

We will equip growers with improved skills to identify and manage acidification and soil erosion in NE VIC landscapes

**In the naturally high rainfall areas of NE Vic., soil acidification and erosion are normal interactions between soils and climate, however, often misunderstood in farming practices and the negative impact to the broader region**

**FOR:** Chestnut Hazelnut and Walnut Association Members **FREE**
All other growers welcome - $33 fee – inclusive of the final report
**VENUE:** Stanley Hotel, STANLEY. VICTORIA
**DATE:** Thursday 13th May 2021
**PROGRAM:**
8.30 - Welcome and Registration
9.00am Transition to Soil Heath,
10.15am Break
10.30 - Soil Analysis Results, Farm Management
12.00pm Conclude

**Book early as number of attendees may be restricted due to COVID requirements**
**Register your attendance TODAY!**

To find out more contact us at sahort@bigpond.com or darren@connexusglobal.com

**This project is supported by North East CMA through funding from the Australian Government's National Landcare program**

# Soil Health and Management to address Soil Acidification and Soil Erosion

**Thursday 13th May 2021,**

**The Stanley Hotel, STANLEY. VICTORIA**

**REGISTRATION FORM:**

**Register by completing the form below.**

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**Business Name:** .....
**Address:** .....
.....**Postcode:** .....
**Phone:** ..... **Fax:** .....
**Mobile:** .....
**E-mail:** .....

**The workshop for CAI, HGA and AWIA members is FRER.**
**Non-Members $33 (Inclusive GST) per workshop per person**
**CAI/HGA/AWIA Member** **YES** **NO**
**The following person(s) will be attending the**
**a) Soil Symposium:** **YES** **NO**

**how many seats** .....

**NAMES:**
..... .....
..... .....
**RSVP:** **Monday 10th May 2021**
**RETURN FORM TO:** **Trevor Ranford,**
**27 Ludgate Hill Road, ALDGATE. SA. 5154**
**E-mail: sahort@bigpond.com**

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**Signature:** ..... **Date:** .....

## APPENDIX G: Presentation slides

***Attached as separate files to this final report***