

MACCY BIOCHAR MEMBER BULLETIN

No. 68 – 1 June 2025

Maccy Biochar is a Task Group of the Macclesfield Community Association Inc.

Email: maccybiochar@adam.com.au Website: www.maccybiochar.com

Facebook: www.facebook.com/maccybiochar

75,426 litres biochar made; 36.28 tonnes of CO₂ removed from the atmosphere.

Welcome to our 68th Member Bulletin. In this Bulletin please find our latest news items from here and further afield.

LOCAL NEWS:

The Drought:



The dam has started to fill.

Renmark Workshop – June 2025:

Kelvin & Fiona will set off for Renmark on 3 June for the workshop the next day and the trailer with kiln will be taken up there by an officer from the Murraylands & Riverland Landscape Board.

Instagram assistance:

WANTED: Person familiar with biochar and Instagram to assist with setting up an Instagram account and posting monthly messages of our group's activities.

Remuneration: Subject to negotiation.

Apply: Email to maccybiochar@adam.com.au

New Member:

Welcome to Nerida Bell of Macclesfield who wants to learn how to make biochar for her garden.

Community Biochar Incentive:

There was one successful applicant to this new initiative – The Quorn Quandong Festival Committee. Sharon Taylor, representing the group, visited Macclesfield last week and received training on using the kiln and took delivery on the same day of the kiln shown below.

We are looking forward to seeing this group making lots of biochar to sell at their famous Quandong Festival and to other local users.



Biggest Morning Tea:

Once again we donated biochar to auction at this charity event in aid of Cancer Research. This time we helped raise \$240 from 6 x 15 litre bags of enhanced biochar. Many thanks to Geoff, Kelvin & Fiona for arranging this on our behalf.

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Bi-annual report to MCA

As at the end of December 2024 our total production of biochar (including private production by members) since the group's inception in 2019 was about 75,000 litres of biochar representing the removal of about 36 tonnes of CO₂.

The group's main activities during the last 6 months of 2024 were:

- Purchase & installation of a new wood shelter;
- 12 wood collections in Macclesfield and adjacent districts all done without charge but at our cost;
- 16 "burns" producing 8,760 litres of biochar and capturing about 3.5 tonnes of CO₂;
- Sale of 8,220 litres of biochar;
- 1 Workshop at Macclesfield courtesy of Adelaide Hills Regional Waste Management Authority; and 1 at Lameroo courtesy of the Riverland & Murraylands Landscape Board;
- Presentations at the Burnside Sustainability Expo and the Waldorf Mt. Barker School Garden Fete;
- Representation at Mt. Barker Council's Environment & Sustainability Forum;
- Stall at the Macclesfield Strawberry Fete;
- End of Year Barbecue;
- Monthly member bulletins.

Membership was 31.

FINANCIAL POSITION:

Cash Balance at 1 July 2024 = \$10,551.10

Income for the 6 months = \$7,359.40

Expenses for same period = \$2,526.62

Cash Balance at 31 Dec. 2024 = \$15,383.88

FROM USA:

Fertiliser & Biochar:

The Food Environment & Reporting Network (FERN) Recently published a report and video on the journey that fertiliser makes from the soil and into the Mississippi river and down to the Gulf of Mexico. Entitled "Fertilizer's toxic journey" it goes for 35 minutes and has provoked some interesting expert commentary from Tom Miles, reproduced below:

"The video is from an advocacy group, Food and Environment Network, that eloquently describes

problems that we already know about but it offers no creative solutions.biochar-based products can offer cost effective solutions to agronomic and environmental challenges like N and P runoff.

We grow corn and soybeans on 100 million acres in the US. The only solution fern.org describes is cover crops which are practiced on 5 million acres. The [Soil Health Institute](#) reports that cover crops can reduce nitrate-N loss by 30%-40% and dissolved P by 50-91% at costs of \$25-\$40/acre for seed and planting.

Nitrogen Loss reduction:

- Cover crops alone: Reduce nitrate-N leaching by 30–40% in tile-drained systems, primarily by capturing residual soil N after harvest.
- Biochar alone: Reduces N leaching by 23–37% through adsorption and microbial immobilization.
- Combined effect: Field trials show 45–60% N loss reduction when cereal rye cover crops are paired with biochar (10–20 tons/acre), outperforming either practice alone. Biochar enhances N retention in cover crop biomass, reducing dissolved nitrate in subsoils by 28.9%.

Other alternatives reported by SHI include:

- Conservation tillage – not-till and strip till See [Earth Brew trials](#) (2025), [Down the Worm Hole](#) (David Yarrow, JR Bollinger strip till 2016)
- Precision nutrient management
- Edge of field solutions including constructed wetlands, bioreactors, and saturated buffers.
- System level solutions including extended crop rotations, and tail water recovery such as recovery of irrigation water in sedimentation basins with irrigation reuse.

The most cost-effective solutions are: cover crops, N rate optimization, Spring N application, substrate P banding and constructed wetlands.

10 tons of biochar per acre at 100 million acres would require 1 billion tons of biochar from 4 billion tons of biomass. You can recover about 4.5 tons of stover from conservation tillage with corn at 200 bushel/acre which could be converted to about 1 ton of biochar

Making Maccy Carbon Neutral

Making Biochar for carbon capture and soil improvement

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per acre. Applying 1 ton of biochar per acre as part of a biochar-amended fertilizer system can support 200 bushel/acre (1bu=56 lbs/27.4 kg) corn yields while reducing nitrogen (N) and phosphorus (P) losses, but results depend on soil conditions, biochar formulation, and complementary practices. It should reduce fertilizer needs (15–20% less N) and lower leaching loss offset costs within 2–3 years.

Since 2007 Stephen Joseph and others have shown us the benefits of using a few kg/ha of biochar amended minerals and fertilizers. See “[Biochar based fertilizers, co-composting and growing media](#)” in Biochar for Environmental Management: Science Technology and Implementations 3rd edition (2024), “[A farmer’s guide to the production, use and application of biochar](#)” ANZBIG 2024 and the many papers Stephen has cited.

There have been many formulations including biochar amended with magnesium (Mg) or calcium (Ca) which significantly improve fertilizer efficiency by enhancing nutrient retention and slow-release properties. Some of the more effective formulations reported are:

MgO-co-pyrolyzed biochar

30–50% P loss reduction; 20–30% slower N release.
Maintains yields with 15–20% less fertilizer.

H₃PO₄-activated biochar

61–90% controlled urea release vs. 99.6% in 12 mins (uncoated).
No yield drag at 30% N reduction.

PLA-coated biochar

Reduces N leaching by 68–71% vs. 99.9% (control).
Sustains yields at 25% lower N rates.

Biochar + strip-till

25% dissolved P loss reduction via subsurface banding.
Comparable yields to conventional systems.

Let’s develop commercial cost-effective biochar-based solutions and promote the use of those that are already being made.”

Forestry & Biochar:

Source: SpringerLink

<https://share.google/nY27TEsnhsVCfDv47>

“Biochar produced from pyrolysis of biomass such as wood, canopy, animal manure, and agricultural waste is recognized for its stability and for being a benefactor of soil health and plant growth. Its application in forestry is an area with growing research interest

The article highlights the following:

- Biochar improves soil health, structure, water retention, and tree resilience.
- Unique biochar–tree interactions boost carbon storage and root-system benefits.
- Tailored biochar use mitigates nutrient immobilization and pH-related challenges.
- Long-term trials are vital to optimize biochar applications for forestry systems.

COMMITTEE MEETINGS

Committee meetings are normally held on the 3rd Monday of the month (public holidays excepted) from 7:30 pm. in the Macclesfield Institute Supper Room. You are invited to come along if you have a biochar matter you would like to discuss or simply to meet us.

Our next meeting will be on **Monday 16 June 2025.**

ENQUIRIES:

Secretary: Brian Lewis. Mob: 041 148 0935

Production: Kelvin. Mob: 0423 198 345.

Wood Collection: Geoff. Mob: 0418 800 691.

Membership: Fiona. Email: fmwil62@gmail.com

Facebook: Fiona Williams or Brian Lewis.

Brian Lewis – Editor