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Whole Farm Waste Minimisation - Summary

Waste begins at home. Food waste, unnecessary car trips, excessive consumption of stuff, etc.

Our homes can be a productive ecological unit within the farm, or at smaller scale the home and garden can function as a mini farm in it's own right. Food waste, for example, can become a animal feed and composting resource to support home or farm scale food production.

Deep litter chicken strawyard compost showing compost worms, Murrnong

Integrating compost making with, in the above example, chickens, provides services to the compost – turning, weed removal, mouse control – and a food resource to the chickens while the compost is being made.

Chickens on almost finished woodchip compost, Murrnong

Woodchip compost is an excellent resource for tree growing, especially high value food producing trees. It can easily accept and process animal wastes, including whole dead animals, to close the fertility loop on farms.

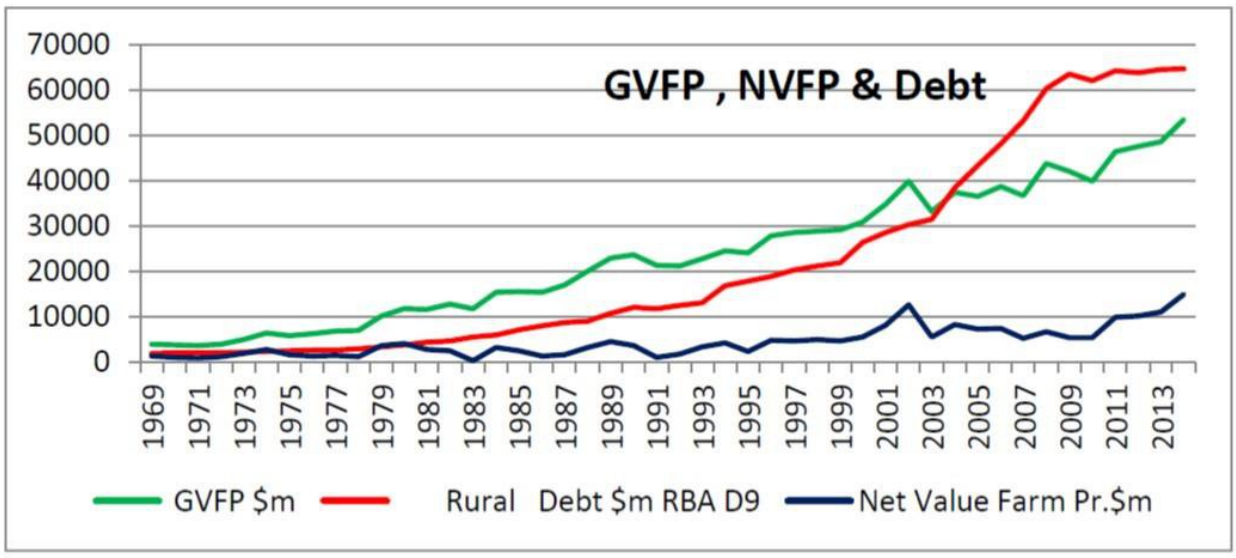
More information about integrating waste with home food production can be found through various permaculture publications, such as the recent book RetroSuburbia, by David Holmgren, with most of the book's examples from SE Australia.

See permaculturepriciples.com for books.

Murrnong farm has courses, sometimes workshops, and property tours here in North East/ North Central Victoria. murrnong.com

COST OF INPUTS

Beyond the disposal/ recycling of waste materials, one of the greatest polluting aspects of modern agriculture is the cost, embodied energy and embodied pollution of industrial inputs.



Compiled from: ABAREs commodity statistics Table 13, 2014

RBA online; Table D9, Rural Debt

In modern industrial agriculture the space between the green line above, Gross Value Farm Production, and the blue line, Net Value Farm Production, mostly relates to the cost of inputs and farm machinery.

The table above shows that the lion's share of farm income goes to the farm supplies sector.

The space below the blue line, above, represents farm income after expenses.

The cost of inputs is not just monetary, there is a huge energy and pollution cost.

For example, most of the nitrogen for farm fertilisers in Australia is synthesised industrially by the Haber-Bosch Process. This energy intensive process uses natural gas for a hydrogen source, air for a nitrogen source and electricity to power it. In 2018 industrial fixation of nitrogen, mostly for use as fertiliser, consumed 2% of global energy and produced 2% of global CO2.

This very significant consumption of energy to produce nitrogen fertiliser is an almost obscene waste considering ecological systems, including ecological agriculture, can fix their own plant available nitrogen from the 78% portion of the air around us that is atmospheric nitrogen.

Inter-row space with winter/spring pasture of volunteer species, Murrnong Sept 2022

The pasture shown above has not had any fertiliser applied for at least 20 years. It is grazed briefly about 5 times a year by goats tethered to sheds on wheels, and is mown 1 to 4 times a year through spring and in a wet summer. Prunings of olive branches are laid along the centre of the row, and smashed up by the tractor powered mulching mower. The turbulence of this branch smashing has lead to predominately annual grasses and herbs along the centre of the row, with many perennial grasses along the tree lines.

In the foreground clover can be seen. Clover is a legume that hosts nitrogen-fixing rhizobia bacteria, *provided* the soil has healthy enough soil life for these bacteria to be present. There are no signs of nitrogen deficiency in this olive grove or pasture.

The pasture management by pulse mowing or pulse grazing – as distinct from set stocking – supports rapid carbon accumulation in the soil. Annual pruning of the olive trees also assists with the pulsing form of management.

The accumulating soil carbon contributes to a deeper and more fertile topsoil, which in turn hosts an increase in soil biology, which contribute to making nutrients that are tied up with clay particles more available.

Australian soil scientist Dr Christine Jones' website amazingcarbon.com has many articles on this general topic. She makes the point that well managed plants, solar powered by photosynthesis, remove carbon dioxide (CO2) from the atmosphere, replace it with life-giving oxygen, support a robust soil microbiome, regenerate topsoil, enhance the nutrient density of food, restore water balance to the landscape and increase the profitability of agriculture.

David Arnold
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