



# THE ECONOMICS OF COMPOSTED RECYCLED ORGANICS IN VEGETABLE PRODUCTION

## WHAT ARE RECYCLED ORGANICS?

Recycled organics are compostable organic materials, including garden organics, residual wood and timber. Compost made from recycled organics is derived from shredding and stockpiling these green materials for up to six months before being screened to remove contaminants and create a compost high in organic matter, essential nutrients and beneficial bacteria.

Compost is an efficient method of quickly reintroducing organic matter to vegetable cropping systems.

## HOW MUCH DOES IT COST?

Compost is \$50 per cubic metre at trade volume. However, freight charges are a significant cost outside major cities.

## WHAT IS AN ECONOMICAL RATE OF APPLICATION?

Compost should be applied between 5–10 tonnes or 8–16 m<sup>3</sup> per ha. Higher rates are more economical near major cities and lower rates are economical in rural areas.



## WHAT ARE THE NON-QUANTITATIVE LONG-TERM BENEFITS OF RECYCLED ORGANICS?

There are many economic benefits of recycled organics which are difficult to quantify. They include:

- Greater water infiltration
- Higher nutrient holding capacity
- Increased organic matter
- Lower bulk density

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## CASE STUDY – CORN COMPOST APPLICATION

The trial at Cowra tested the application at four tonnes per hectare and nine tonnes. The results showed greater cost benefit and profit at the lower application rate than higher.

At Cowra, NSW, compost made from recycled organics was spread immediately prior to sowing and the corn crop harvested five months later.

Compost applied at 4 tonnes (7m<sup>3</sup>) per hectare yielded an increase in corn production of 17%. Additional

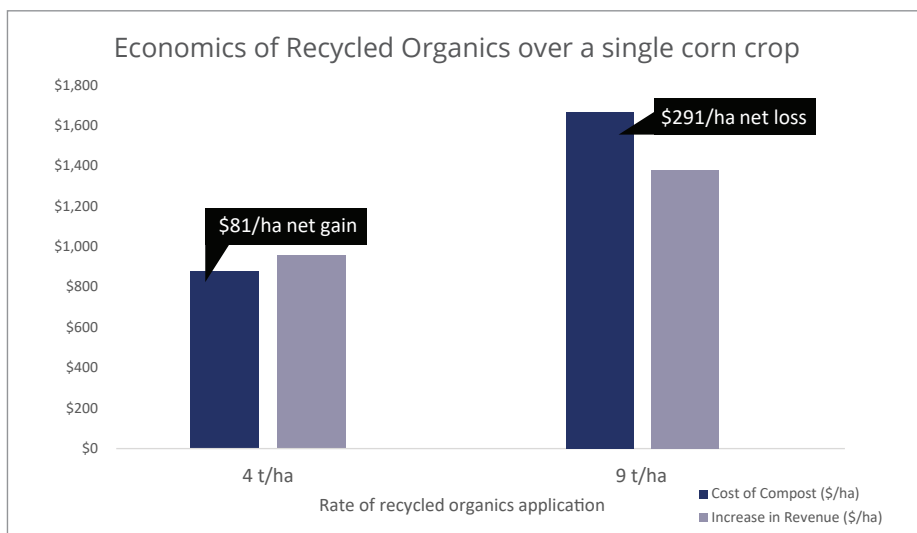
revenue exceeded the cost of the compost applied by \$81 per hectare. This simple cost-benefit analysis does not consider other efficiencies such as greater water infiltration, increased soil nutrients, increased soil organic matter and other long-term soil health benefits.

Compost applied at 9 tonnes per hectare (16m<sup>3</sup>) per hectare also increased yields by 25%. However, it resulted in a net loss of \$291 per hectare due to the additional transport costs.

Extending economic analysis to include subsequent plantings will most likely show profitably.

| TREATMENT                                | NO COMPOST | COMPOST 4 t/ha | COMPOST 9 t/ha |
|--|------------|----------------|----------------|
| Volume of compost (m <sup>3</sup> /ha)   |            | 6.72           | 13.92          |
| Cost of compost (\$/ha)                  |            | \$336          | \$696          |
| Cost of spreading (\$/ha)                |            | \$140          | \$140          |
| Cost of freight (\$/ha)                  |            | \$403          | \$835          |
| <b>Total cost of compost (\$/ha)</b>     |            | <b>\$879</b>   | <b>\$1,671</b> |
| Corn Yield (t/ha)                        | 9.3        | 10.9           | 11.6           |
| Corn Revenue @ \$600 per tonne (\$/ha)   | \$5,580    | \$6,540        | \$6,960        |
| <b>Economic Value of Compost (\$/ha)</b> |            | <b>\$81</b>    | <b>\$(291)</b> |

**Table 1.** Breakdown of costs and revenue for composted recycled organics applied to a corn crop in Cowra, NSW



**Figure 1.** Economics of compost applied to a corn crop in Cowra, NSW

## CASE STUDY – RADISH AND COMPOST APPLICATION

A greenhouse farming operation north of Sydney had an issue with too much variability in the size of the radishes they produced. Compost was applied to the sandy soil at 10 tonnes or 16m<sup>3</sup> per hectare, to help improve the soil condition.

The compost cost \$800 per hectare, another \$800 per hectare in freight and \$140 per hectare to spread. The total cost of applying compost was \$1,740 per hectare or 17 cents per square metre.

A replicated trial showed an increase in radish pack out by just 3%. However, because of greater size and uniformity of the new radish crop, revenue increased by 30 cents per square metre, for an investment of just 17 cents per square metre. Therefore, the net benefit after paying for the compost was 13 cents per square metre or \$1,283 per hectare!

In this case, compost was a good investment, with a significant payback within one cropping cycle. This is due to the high intensity of greenhouse farming,

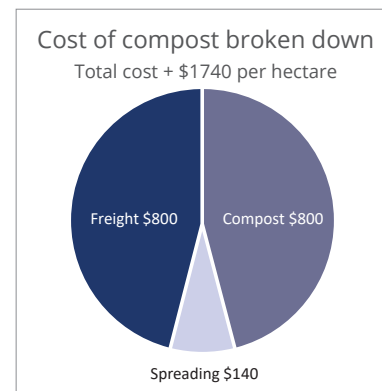
relative proximity to the compost production facility at around 100 kilometres, and the initial low organic matter content of the sandy soil at the farm.

This cost-benefit analysis hasn't taken into consideration the other efficiencies such as greater water infiltration, increased soil nutrients, increased soil organic matter and other long-term soil health benefits.

### TAKE HOME MESSAGE

A few lighter applications of compost are preferred to a single heavy application when considering your return on investment and

compost will be most useful on land with low organic matter.



**Figure 2.** A breakdown on the total cost of recycled organics applied at 10 tonne per hectare to radish crop near Sydney, NSW

| TREATMENT                                  | NO COMPOST | COMPOST 10 t/ha |
|--|------------|-----------------|
| Volume of compost (m <sup>3</sup> /ha)     |            | 16              |
| Cost of compost (\$/ha)                    |            | \$800           |
| Cost of spreading (\$/ha)                  |            | \$140           |
| Cost of freight (\$/ha)                    |            | \$800           |
| Total cost of compost (\$/sqm)             |            | \$0.17          |
| Total cost of compost (\$/ha)              |            | \$1,740         |
| Bunches per sqm                            | 9.4        | 9.6             |
| Radish revenue @ \$1.20 per bunch (\$/sqm) | \$11.3     | \$11.6          |
| <b>Economic value of compost (\$/sqm)</b>  |            | <b>\$0.13</b>   |
| <b>Economic value of compost (\$/ha)</b>   |            | <b>\$1,283</b>  |

**Table 2.** Breakdown of costs and revenue for compost made from recycled organics applied to a radish crop near Sydney, NSW