

# Organic vs synthetic fertiliser

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## Aim

To evaluate the effectiveness of an organic fertiliser (chicken manure) compared to conventional synthetic compound fertilisers.

## Background

Rising input costs and declining soil fertility has encouraged growers to trial alternatives to conventional fertilisers. These alternatives are hoped to be more cost effective and sustainable.

In this demonstration the economic value of chicken manure is compared to an AgStar and MOP-compound combination in 1.5-hectare plots of Tanami canola.

## Trial Details

<b>Property</b>	Dodd property, West Buntine
<b>Plot size &amp; replication</b>	1.5 ha, non-replicated
<b>Soil type</b>	Loamy Sand
<b>Soil pH</b>	4.8
<b>Sowing date</b>	10/5/10
<b>Seeding rate</b>	4 kg/ha
<b>Fertiliser</b>	see treatments
<b>Paddock rotation</b>	08 Wheat, 09 Wheat
<b>Herbicides</b>	1.1 kg/ha Atrazine (pre-seeding), 0.5 L/ha Select, 1.1 kg/ha Atrazine
<b>Growing Season Rainfall</b>	160mm

**Table 1:** Nutrient breakdown of organic and synthetic fertiliser used in West Buntine.

<b>Nutrient Breakdown</b>	<b>Units N/ha</b>	<b>Units P/ha</b>	<b>Units K/ha</b>	<b>Units S/ha</b>
Chicken manure at 3 m <sup>3</sup> /ha	48.0	15.6	20.4	6.12
AgStar at 80 kg/ha, MOP at 20 kg/ha	11.4	11.2	10.0	2.06

Assumption: 1m<sup>3</sup> of chicken manure weighs 400kg.

## Results

**Table 2:** Yield and quality of canola sown at West Buntine.

<b>Treatments</b>	<b>Yield (t/ha)</b>	<b>Protein (%)</b>	<b>Moisture (%)</b>	<b>Oil content (%)</b>
Chicken manure at 3 m <sup>3</sup> /ha	0.43	23.61	5.2	39.9
AgStar at 80 kg/ha, MOP at 20 kg/ha	0.36	23.17	5.1	40.3

## Economic Analysis

**Table 3:** Economic Analysis (\$/ha).

<b>Treatments</b>	<b>Yield (t/ha)</b>	<b>Gross return (\$/ha)</b>	<b>Variable costs (\$/ha)</b>	<b>Gross margin (\$/ha)</b>
Chicken manure at 3 m <sup>3</sup> /ha	0.43	240.8	104.15	136.65
AgStar at 80 kg/ha, MOP at 20 kg/ha	0.36	201.6	84.15	117.45

Chicken manure at \$27/m<sup>3</sup>; Budget Guide 2010: AgStar at \$540/t, MOP at \$890/t; Farm gate canola price (Daily Grain) as at 12/11/10: \$560/t, Select at \$17/L, Atrazine at \$6.66/kg

**Comments**

In this demonstration the part of the paddock that was fertilised with chicken manure yielded 19.4% higher than the part of the paddock that was fertilised with the conventional compounds. This may be due to the higher amount of nutrients applied with the chicken manure.

Although the chicken manure was cost intensive with \$27/m<sup>3</sup> and was applied at a rate of 3m<sup>3</sup>/ha an increase in the gross margin by \$19.20/ha was noted.

Please note that this is a non-replicated farmer demonstration and results need to be interpreted carefully.

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**Paper reviewed by** Janette Drew, DAFWA

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