FEEDING THE WORLD WITH QUALITY ORGANIC FOOD

Agronomist Adam Willson looks at why organic farming and production is the way of the future.

By ADAM WILLSON

Recently there have been a number of agricultural specialists that have said that organic farming cannot feed the world. Siting examples of a 25-50% drop in production, organic farming has been sidelined as a niche market that has no place in "real sustainable farming". They argue that conventional or "industrial agriculture" is the solution to the world's apparent shortage of food and to introduce genetically modified crops, borrow money from the world bank or equivalent and pump the crops full of expensive imported NPK fertilisers. In this article I want to dispel the myth that organic growers can't produce exceptional yields and quality.

ORGANIC YIELDS OUTSTRIP CONVENTIONAL

There are countless examples of excellent organic growers producing yields far in excess of conventional neighbours. Examples include aloe vera 294t/ha as compared to conventional yields of 125t/ha (see attached photo below), onions 82.5t/ha compared to 30-62.5t/ha, carrots 75-100t/ha as compared to 50t/ha and dryland soybeans 3.75t/ha as compared to 2.5t/ha.

The only reason most people don't hear about these examples is because there is often no silver bullet or new products to sell - no new fungicide, insecticide, fertiliser, foliar or hormones. Big business is not interested in how to convert organic matter into humus, how the calcium and potassium balance affects protein and carbohydrate production, why green manure crop/pasture leys are essential and how to maximise nitrogen fixation. It is these factors that makes the difference between good and bad organic growers, why some organic farmers are very profitable and some are going broke. ▶

The world's best practice for growing aloe vera is 125t/ha.

This organic Australian crop yielded a massive 294t/ha - rich in essential long chain polysaccharides.

This crop was grown using a mineral rich, balanced compost together with applied microbiology.

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GENETIC EXPERT SLAMS GMO'S

In the 20th October 2004 edition of "The Weekly Times", the title of the article says it all - "Have GM crops come a cropper?". In this article Dr Mae Wan Ho, Director of the Institute of Science in Society, London, explained that GM crops in Europe have been found to be unstable and non-uniform. Moves are now afoot to ban all GM crops in Europe based on this data from France and Belgium. She went on to say that there is no other way to feed the world other than sustainable agriculture. She cited the example - In 1995 in Ethiopia, the EPA and Institute of Sustainable Development introduced traditional Indian composting with water and soil conservation. Crop yields have more than doubled, outperforming conventional crops in most cases. She concluded by saying this is what every country in the world should be doing; rich or poor.

PROTEIN ISN'T JUST NITROGEN

Then there is the issue of the right proteins in foods. The conventional way to measure this is to do an acid digestion of the food and measure the nitrogen content. This figure is then multiplied by a coefficient (normally 6.25) and “voila”: protein %. However, just because a plant contains nitrogen doesn't mean it equates to protein.

If excess nitrogen fertiliser is applied, this can lead to high nitrates in the leaf and grain. If molybdenum is deficient in the plant, nitrates build up leading to bitter tastes and poor protein quality. True protein that really feeds the population is made up of a wide array of amino acids that require balanced soil nutrition not just shotgun NPK fertilisers based on simple assumptions.

PROTECTED WITH SECONDARY METABOLITES

Another common criticism of organic growers is that low yields can be directly attributed to poor insect control. What conventional farming has failed to identify is that plant stress increases the chance of being attacked by insects or diseases. Plant stress is primarily due to moisture and nutrient deficiencies. In particular, plants protect themselves by producing nitrogen, phenol and terpene compounds called secondary metabolites. The enzymes that produce these compounds require trace elements that are bio-available. The best way to chelate trace elements is in a quality compost, rich in fulvic acids - the corner-stone of modern organic farming. ▶

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HUMUS EQUALS LESS WATER STRESS

Think about this little fact. If you convert 0.25% organic carbon (0.5% organic matter) into stable humus, this will hold 0.1ML of water. On a practical level, this means that even a few points of rain will be absorbed into the soil and will not evaporate.

Humus rich soil works like a forest. It creates a positive temperature gradient that draws water into the profile and holds it. It is imperative for recharging dry water tables. In a recent Bundaberg trial on potatoes, water savings of 20% were achieved in 69 days. In a world that is rapidly drying up, modern organic farming is now producing more per ML of water used.

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In this trial (a 60-acres potato crop), the soil density comes to 1.3 megalitres, based on humus holding over 20% of its weight in water

EAT LESS, EAT ORGANIC

If you grow a healthy crop on mineral rich compost, then what happens if we eat such food? The answer is simple - you need less food to satisfy your appetite. Part of the current world health and food crisis is due to excessive simple sugar diets and nutritionally poor food. It has already been established that crops grown on humus rich soils contain higher levels of vitamins and amino acids. Modern organic farming is founded on humus farming. This is the future way to feeding the world. ■