



Fact Sheet – Vegetable Wastes

Vegetable waste – a global issue

Food waste has been studied in many countries of the world. The figures are startling, with up to a third of all food produced thrown away before it is eaten.

Disturbingly for the vegetable industry, almost 50% of what is thrown away is fruit and vegetables, even though this category represents closer to 20% of food purchased. According to the USDA, this figure is continuing to increase:



Losses in developing countries are commonly due to pests, diseases and transport inefficiencies. In contrast, waste in the developed world is often caused by oversupply and high market standards which lead to product being either graded out or abandoned before harvest.

Vegetable waste in Australia

According to the Australia Institute, Australians threw away \$5.3 billion worth of food in 2004, more than half of which was fresh fruit and vegetables.

Despite this, of the >1,000 reports on Australian food waste, almost all have focused on waste by consumers, with less than 2% of studies including pre-farm gate or farm gate losses.

What is considered waste also depends on your point of view. For many farmers, waste is abandoned or discarded product. It may include product sold, although at a reduced price.

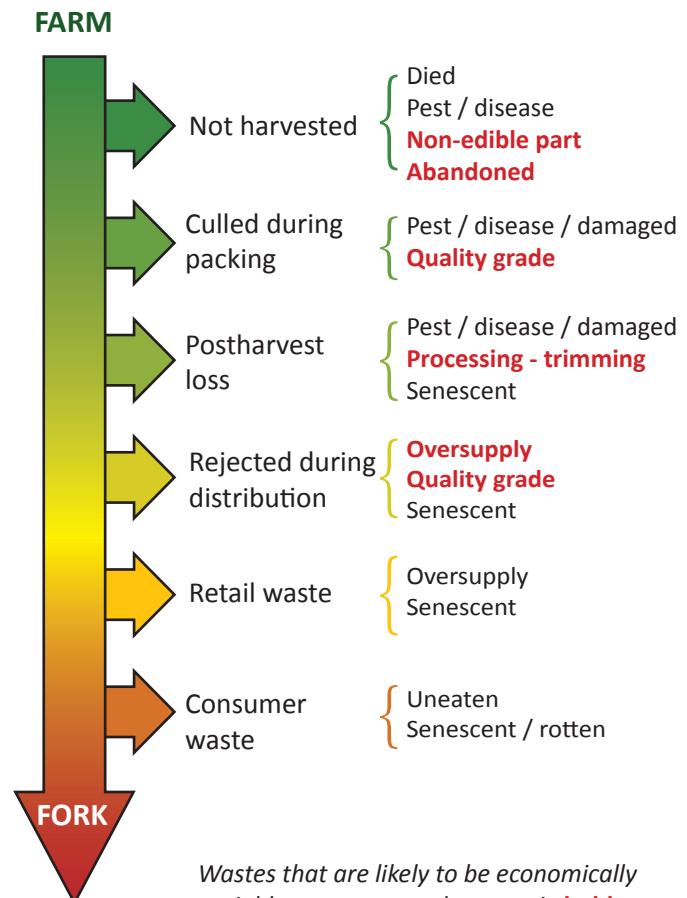
In the case of biofuel production, unharvested plant materials are just as valuable as what comes out of the packing shed. Although rarely counted as waste, biomass left in the field may be a significant resource:

	Non saleable part of the plant (%)	Biomass left in the field (est. kt / yr)
Broccoli	70*	114
Capsicum	56	153
Cauliflower	65	139
Sweet corn	40	67

* new varieties may be more efficient

Recoverable vs non-recoverable waste

As product moves through the supply chain, consolidating and using waste becomes more difficult. Only materials produced near the grower/packer are likely to be recoverable.



Estimating vegetable wastes

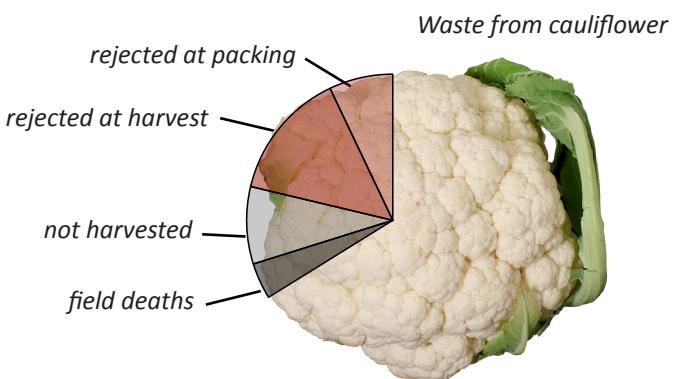
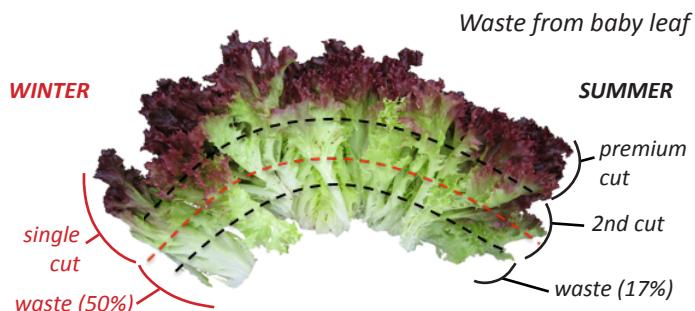
Waste of key vegetable lines was estimated using a combination of interviews with growers, packers and processors, published research, Ausveg records and ABS data.

Results are estimates only, but do provide a guide as to potential sources of raw material for re-use.



Waste of specific vegetable crops

For each of the key vegetable crops, percentages of waste were estimated for each step of the supply chain, including volumes sent for processing. For example, in the case of cauliflower, approximately 71% of the crop may be marketed as premium, the rest being wasted.



For some crops, waste varies between summer and winter. Reduced colour development during winter means that only the tips of fancy lettuce can be used, with 50% of the leaf mass wasted. However, 2/3 of production is during summer, when two cuts can be taken from each leaf, reducing waste to 17%.

Waste estimates for the crops studied are summarised at right.

Carrots produce the most waste, mainly due to strict product specifications.

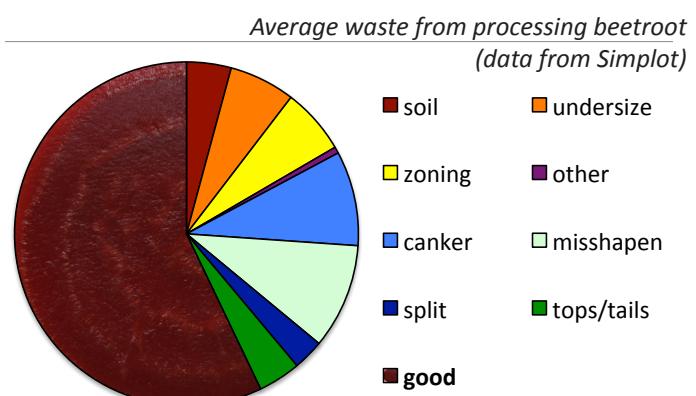
Overall, 25% of vegetable production was estimated to go to waste. Finding new, profitable uses for this waste would greatly benefit the Australian vegetable industry

Crop	Area planted (Ha)	Average Yield (t/ha)	Total Production (kt/year)	Total Waste (kt)	Total Waste (%)	Value of Waste (\$ million)
carrots	4,600	65	300	93	31	24.0
capsicums	2,300	52	120	31	26	13.8
cauliflower	2,500	30	75	28	37	19.6
sweet corn	6,700	15	100	27	27	14.3
cabbage	2,000	27 (64 proc)	73	20	27	9.7
baby leaf TP	4,500	35	158	19	12	38.8
lettuce	4,500	27 (38 proc)	124	17	14	7.4
broccoli	7,000	7	49	15	31	16.7
beans	6,000	8.5	51	13	25	2.2
beetroot	900	40	36	10	28	1.2
baby leaf DS	3,500	8.5	30	3.5	12	6.9
Total	44,500		1,116	276.5	25	154.7

While processing offers an alternative market to fresh market for some vegetables, in most cases crops are grown specifically for this purpose. Examples include lettuces and cabbage, which are grown to a larger size when destined for processing.

Processing results in a higher level of direct waste than fresh sales. Up to 43% of canning beetroot is wasted (as shown at right), compared to 15-20% waste for fresh market product.

For sweet corn, waste increases dramatically with the level of processing: whole (5%); trimmed (20%); processed cobs (38%); and processed kernels (52%).



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