



Vegetable Matters – of - Facts

Based on research funded by the vegetable growers levy,
Horticulture Australia and Victorian Department of Primary Industries



VegCheque
extension for the vegetable industries

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Managing Tipburn

Main points

1. Withhold nitrogen fertiliser from your crops in summer to avoid rapid growth
2. Water the crop late in the day or at night so that the root zone is wet overnight
3. Harvest the crop early to minimise tipburn damage
4. Avoid irrigation water with a salinity greater than 900 uS/cm
5. Use tipburn-tolerant varieties

Lettuce



1. Watch out for rapid growth

Rapid crop growth conditions, such as good weather and excessive nitrate fertiliser, will increase the risk of tipburn developing in the crop.

2. Watering at night

Make sure the crop is provided with adequate water at night. Transpiration is generally reduced in the dark and when the soil is wet, water and nutrients can “recharge” the plant.

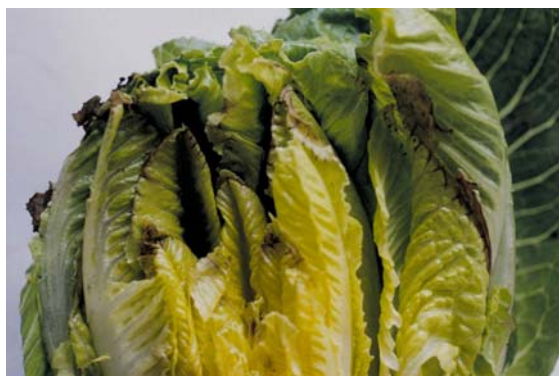


3. Harvest early

Do not delay harvesting the crop, harvesting 3 days earlier than normal can reduce tipburn by as much as 30 to 50%. These differences may be related to loss of root length or vigour close to harvest as the plant prepares to go to seed.

4. Saline water

Lettuce is very sensitive to saline water which increases the risk of developing tipburn. If low quality water (EC > 900 uS/cm) must be used, it is even more important to avoid daytime overhead watering.



5. Which variety ?

Lettuce cultivars differ in their susceptibility to tipburn. Some varieties are able to maintain higher concentrations of sap-nutrients which reduce the risk of tipburn. Discuss choices with your seed supplier.

Why is tipburn such a problem?

Control of tipburn is a real problem to growers because it is so unpredictable, affecting some plantings more than others and there are no totally effective control measures.

What causes tipburn?

While generally considered a calcium deficiency problem, tipburn occurs despite plentiful supplies of calcium in most vegetable growing soils. Calcium strengthens plant cell walls and tipburn results from the plants inability to supply sufficient calcium to developing leaves during periods of rapid growth.

More about Calcium

Calcium moves through the lettuce plant along with water drawn by the transpiration process.

Rapidly transpiring outer leaves draw most of the water and accumulate most of the calcium. Enclosed lettuce heart leaves have a much lower transpiration rate and draw less water and calcium.

With less calcium available, the rapidly growing heart leaves form weaker cell walls which may collapse as the leaves expand close to harvest and this is seen as internal tipburn.



Want to know more?

HAL Lettuce Project VG 98082

For more information contact :

Slobodan Vujovic – Lettuce Project Officer
DPI-Knoxfield, (03) 9210 9222

Lavinia Zirnsac – Vegetable Officer- Gippsland
DPI-Bairnsdale (03) 51 52 0600

Rob Dimsey – Regional Program Leader – Horticulture
DPI-Bairnsdale (03) 51 52 0600

<http://www.dpi.vic.gov.au/agvic/ihd/projects/lettuce.htm>

For more information please contact
your local VegCheque officer.

Neville Fernando	Gippsland	5152 0616
Sally-Ann Henderson	Northern Vic	5051 4500
Bruce Fry	South West Vic	5233 5510
Craig Murdoch	Melbourne	9210 9222

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Editor: Peter Carr, DPI-Knoxfield, 03 9210 9222.

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DID YOU KNOW?

Lettuce strengthens bones

The *American Journal of Clinical Nutrition* published the results of a large prospective study showing for the first time that vitamin K lowers the risk of hip fracture among middle-aged and older women. Even more surprising, the Boston, Mass.-based Harvard study demonstrates that iceberg lettuce--long considered the "white bread" of vegetables--has nutritional value. Vitamin K, found mainly in all types of lettuce, is required to form the bone protein osteocalcin and may also reduce calcium excretion and bone loss. In addition, researchers suspect it might protect against osteoporosis in postmenopausal women although this wasn't tested.

In the 10-year study of 12,700 women aged 38 to 63 at the start of the study, participants who ate lettuce each day had only 55 percent the risk of hip fracture as those who ate it once a week. Very few took supplemental vitamin K. The women's median vitamin K intake was 163 ug/day, much more than the RDA of 65 ug and the 59 to 82 ug found in general population surveys. Besides lettuce, other sources of vitamin K include broccoli, spinach, and Brussels sprouts. Green veggies also provide many other nutrients important for our health, such as folic acid and vitamin C.

Vitamin K had a pronounced effect in women who had never used oestrogen, but no effect in current oestrogen users. This may be because oestrogen, like vitamin K, strengthens bones.

<http://www.healthwell.com/hnbreakthroughs/jun99/news3.cfm>

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