Lifting crops in November

While most crops are now safely in the store there are still some crops that, for a variety of reasons from late planting, poor weather, delayed desiccation etc., are still in the ground. Lifting these in November is always more difficult than in October, poorer soil conditions generally slow down the process, bring more soil into the store and as a result increase costs. The following few tips for late harvesting can speed up the process and reduce losses.

1. Get the harvester set-up for the wetter conditions, more soil will travel up the webs and will need to be removed so set up on the webs may need to be more aggressive than before.
2. Use as many people on the harvesters as possible to remove soil, rots etc. This will significantly reduce the amount of soil and waste entering the store and in turn will increase the speed of drying when the crop is in store.
3. Harvesters generally will travel better than the tractors and trailers, so where possible consider unloading on headlands.
4. If box filing, judge the number of boxes on the trailer by the soil conditions and what the tractor is capable of pulling. Having to use a second tractor to pull the tractor and trailer combination is far from ideal, but common. Where bulk trailers are being used don't fill them to full capacity, this will

reduce soil damage and the chances of getting stuck. Where compaction occurs this will have an impact on subsequent crops.

5. Avoid water logged areas, the risks of getting stuck are too high and the tubers will already be damaged and are of no value.
6. Use separate trailers for field and road transport, while this will mean having a telehandler on site, it will reduce the amount of soil being dragged onto public roads which is a significant safety hazard especially this time of year when daylight is so short.
7. Leave crop in a drying shed with as much air as possible travelling through the boxes or stacks.
8. Drying will take significantly longer this time of year than what was experienced last month. Air is now cooler and so has less capacity to take moisture out of the crop so be patient. At a temperature of 20^{o}C air has almost double the water holding capacity than at 10^{o}C and so can remove moisture more efficiently and quickly. Where a drying wall or positive ventilated stores are available these will increase the speed of drying, however again the rate will depend on the moisture holding capacity of the air used during drying.
9. Rots will develop slower at lower temperatures so use the drying process to "mummify" rots and avoid spread in store.
10. Late lifted crops will have more disease infection such as silver scurf, rhizoctonia, gangrene etc. so consider moving these on as soon as possible. They will not improve in store!

Common Storage Diseases or Disorders

Proper management of potato stores should reduce the potential for disease spread or disorders. See below a list of some common diseases and disorders that can be found in stores;

Silver Scurf

(Helminthsporium solani)

Source	Storage Control Measures
Spores from seed, dust in potato store – direct contact with skin	• Maintain dry tubers • Clean and disinfect storage areas • Store at low temperatures • Avoid high temperature curing • Store hygiene

Soft Rot

(Eirwinia spp)

Source	Storage control Measures
Seed borne - spread in wet soil from infected tubers and stems	• Maintain dry crop • Lower storage temperatures reduce or retard growth • Discard infected tubers at grading • Good hygiene on grading equipment essential

Pink Rot

(Phytophtora erythroseptica)

Source	Storage control Measures
Soil borne; Spreads in wet and warm soils	• Maintain dry crop • Lower storage temperatures to reduce or retard growth • Discard infected tubers at grading • Good hygiene on grading equipment essential

Dry Rot

(Fusarium spp)

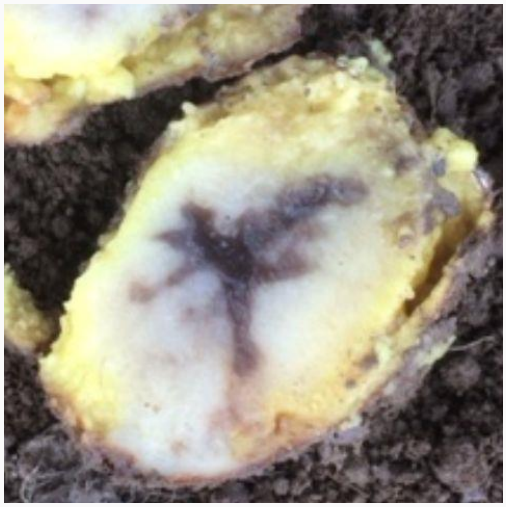
Source	Storage control Measures
Soil and seed borne – associated with damaged tubers	• Prevent Damage at Harvest • Maintain Dry Crop • Adequate curing immediately after harvesting • Use a hot box at harvest to establish the amount of tuber damage

Gangrene

(Phoma spp)

Source	Storage control Measures
Soil or tuber borne – entry through wounds. Associated with cold temperature handling	• Early harvesting during favourable temperatures +8 degrees C • Maintain Dry Crop • Use a hot box to establish the amount of tuber damage • Adequate curing immediately after harvesting

Black Heart



Cause	Storage control measures
Lack of oxygen caused by excess moisture surrounding tubers or high CO_2 levels in store.	• Good ventilation of the store • Ensure all potatoes in store are adequately dried • Prevent condensation on tubers • Avoid bring crop from waterlogged areas into store

Sprout Control in Store

This season will again for many, be a learning curve in controlling sprouts without the uses of CIPC. Many stores are full since late September or early October and crops are well settled at this stage. While some crops have also been treated with Fazor Star (Maleic Hydrazide) which also will give some level of control, most crops will not, so most growers will rely on in store treatments for control. Currently there are four products approved for sprouting control see the table below for details.

Table 1; Approved growth Regulators for Stored Potatoes

Product Name	**PCS No.**	**Active Ingredient**	**Max Individual Dose** (ml/t)	**Max Total Dose** (ml/t)
Biofresh Safestore	04732	Ethylene	Consult distributer for details	
Biox-M	05431	Spearmint Oil	90	360
Argos	05838	Orange Oil	100	900
1,4 SIGHT (DMN)	06256	1,4 dimethylnaphtalene	20	120

The effectiveness of the products above will depend on a number of issues:

- Products such as 1,4, Sight, Argos and Biox-M are volatile and require stores to be well sealed. While ethylene is not as prone to leakage, it will also be affected by continuous air exchange.
- Variety characteristics also play a role, different varieties have different dormancy traits, for example Maris Piper has a relatively short dormancy period and generally require the most frequent applications, while Markies has a relatively long dormancy period and therefore usually will not need as much treatment. Some varieties such as Russett Burbank also have a low temperature tolerance and so also require less treatment.
- Holding temperature will have a effect as the higher the holding temperature the quicker the crop will break dormancy.

For the best advice on sprout control contact any of the suppliers to discuss the best strategy for this season, many stores have already received their first treatment as crops were lifted earlier and at higher temperatures this year. This may mean the strategy used last year may have to be altered depending on the length of time the crop will be in store. Most crops will start with a full rate application of product, this is important to get prolonged sprout control, reduced rates can then be used in the following applications, depending on variety, conditions, market etc. Remember with volatile gases such as DMN you will need to reduce the urge to flush the store for 24- 48 hours as the product will be flushed out as well. If available use a CO_2 monitor in the store to keep an eye

on the levels of CO_2 building up.

Growers should also regularly test the fry colours on crops destined for processing and the results of these fry colours should also be taken into account when deciding if and when to treat.

Regular fry colour tests should be carried out to as part of a sprout control plan.