Teagasc Potato Newsletter November 2019

HARVEST 2019

Harvest progress for the last month has been quite slow with many growers, depending on location, not yet 50% harvested at the start of November. Harvesting in November can often be a tricky affair with extra soil being lifted, low temperatures, increased losses and poorer soil conditions all combining to make the whole process much more difficult.

Looking at some crops this year there seems to be many that set tubers high in the drill, this can give you an opportunity to lift the shares on the harvester slightly which can help to reduce the amount of soil coming up the web.

Look out for rots as there are plenty of reports of pink and bacterial soft rots (Pic. 1) in crops. Where possible, leave these crops till last to harvest as these tubers will break down in the drill and on the harvester and hopefully lesser amounts of the rots will end up in store.

Pic. 1. Soft rot

Make sure that there are plenty of pickers on the harvester to pick off these rots and if necessary slow down the forward speed to allow them to pick out as much as possible.

Where crops coming into store are being run over a grader make sure that the grader is disinfected each day to try to reduce the spread of rots onto clean crop.

STORAGE

With the delayed harvest and lower temperatures in November drying and curing can often be more difficult. Take steps on the harvester and unloading to minimise damage, this is the first step in reducing rots in store. The use of a hot box is a very useful tool in identifying if crops are being damaged during the harvesting process. Take samples daily and report any issues back to the drivers.

Where available use positive ventilation to dry and cure crops. This will be faster and more efficient. However growers need to be patient and make sure that crops are properly dried and cured before going into store, remember temperature has an important effect on the rate of curing see Table 1.

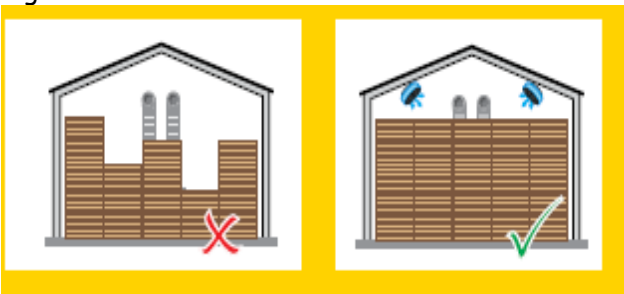
Table 1:

Tuber Temperature (°C)	Initial Suberisation (Days)	Periderm Complete (Days
<5	7 - 14	21 - 42
10	4	7 - 14
20	1 - 2	3 - 6

Gangrene, for example, could be a significant risk this year when trying to cure in cold conditions as it develops below 8°C. As a rule of thumb, the later that crops are harvested, the higher the risk of gangrene infection. See table 2 for a list of storage diseases and control mechanisms.

Filling the store and box stacking are an important part of getting the fridge unit working correctly. Make sure that all boxes are filled no higher than water level and that the boxes are stacked in the correct manner to aid air flow. (See fig. 1)

Fig. 1



Remember air will always take the easiest route back to the fridge so make sure that there are no obstacles or alleys in the stack which will result in uneven air flow through the boxes.

There should be at least 10-12 probes in the boxes to monitor temperature. Remember these are sending info back to the fridge telling it when to turn on and off. For box stores a ventilation rate of **0.02m^3/s/t** is recommended. Over ventilation will result in excess moisture loss and decrease weight, as well as costing money. Under ventilation can result in CO_2 build up, condensation etc. which can spread disease.

As many stores are slow to fill, when filling make sure that the tubers coming into the fridge are within 2-3^{0}C of those already in the store. This will reduce the risk of condensation developing on the tubers. Once settled start to pull down temperatures by about 0.5^{0}C per day until you reach your holding temperature.

SOIL TESTING

When harvesting is eventually complete or on days when you can't harvest soil testing is a job that can be done. Testing completed at this time of year gives you time to plan the cropping for 2020. Quite often were it is carried out late it gives you little time to change the cropping plan. It also gives you time to plan inputs such as organic manures if needed and if so which type are most suited to which fields.

An S1 sample will give you pH, Nitrogen (N), Phosphorous (P) & Potassium (K) recommendations while an S4 sample will add Manganese (Mn), Copper (Cu) and Zinc (Zn).

Contact your local Teagasc office for further details

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Table 2; Potato storage diseases

Disease	Source	Storage Control Measures
Silver Scurf (Helminthsporium solani) 	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
Dry Rot (Fusarium spp) 	Soil and seed borne – associated with damaged tubers	• Prevent Damage at Harvest • Maintain Dry Crop • Adequate curing immediately after harvesting
Bacterial Soft Rot (Eirwinia spp) 	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
Gangrene (Phoma spp) 	Soil or tuber borne – entry through wounds. Associated with cold temperature handling	• Early harvesting during favourable temperatures +8 degrees C • Maintain Dry Crop • Curing • Adequate curing immediately after harvesting
Skin Spot (Polyscytalum pustulans) 	Seed borne or spread form decaying infected stems	• Early harvest in dry conditions • Adequate curing immediately after harvesting • Disease expression occurs more rapidly at low storage temperatures i.e. 2^0 Celsius
Black Dot (Colletotrichum coccodes) 	Mainly soil borne (other hosts possible)	• Early harvest • Maintain dry crop • Curing • Store at low temperatures • Can be misdiagnosed as silver scurf

Photo sources; Teagasc & AHDB