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Dry rot is caused by *Fusarium* species fungi and is an increasing problem throughout the UK. Infected seed leads to uneven emergence, gappy crops, low yields and wide variations in tuber size at harvest.

Infection and spread

The dry rot fungus survives in soil and on infected seed. It infects healthy tubers through wounds and symptoms develop in warm moist conditions. Control of the disease is vital at every stage of seed multiplication, as the level of the disease tends to increase with each successive field generation. The aim of a successful control strategy for seed crops is to:

- Reduce the amount of *Fusarium* present on seed and in soil
- Prevent damage that allows the fungus to enter the tuber
- Store tubers under conditions that limit fungal growth

1. Use longer rotations

Fusarium spores can survive for at least 7 years in the soil. Therefore to reduce the level of fungus in the soil, potatoes should not be grown more often than 1 year in 5, and preferably 1 year in 7, in the same field.

2. Plant disease-free seed

Diseased seed will increase dry rot at harvest as well as contaminate soil.

- Ensure that seed is properly managed and cold-stored prior to planting.
- Carry out a "hot box" test prior to planting to check for rots and reject seed that shows disease symptoms.
- When a new stock of seed is brought onto the farm, and has to be split graded, do not put it over a dirty grader. Either keep a separate, small grader for handling new stocks, or wash and disinfect the main grader.

3. Reduce damage

At harvest

- Ideally seed crops should be desiccated by the end of August so that harvesting can take place in warm, dry conditions.
- Skins must be well set before harvesting and skin set is normally faster if the crop is starting to senesce naturally at desiccation. To achieve this it is important to plant as early as possible, use the optimum amount of nitrogen fertiliser and use sprouted seed, provided it can be planted without damage.
- Harvesters and graders should be checked for wear and parts replaced that could cause damage.

At grading

Tubers' natural resistance to infection is greatest in October/November and declines rapidly after December. Sprouted tubers are particularly susceptible to infection at grading. Sap from crushed sprouts keep grader surfaces damp, facilitating spread of *Fusarium* spores. Freshly de-sprouted eyes are large wounds open to infection. Thus for seed potatoes, autumn grading is preferable, followed by cold storage until planting.

At planting

At planting take great care to avoid damaging tubers, especially if sprouted. Rots started then can cause blanking and they contribute most to carry-over of *Fusarium* infection to daughter tubers.





4. Clean stores and machinery

If clean potatoes are passed over dirty machinery or stored in dirty boxes they will pick up infection and develop dry rot. To reduce this:

- Wash and disinfect all stores and equipment every summer with a suitable disinfectant such as Sorgene 5 or Jet 5.
- During the winter, vacuum floors daily and keep the working area clean.
- Close polyscreens and doors to reduce dust movement from the grading area.



5. Dry potatoes quickly

Dampness on the tuber surface greatly increases the risk of infection by dry rot, soft rot and tuber blight.

- Positive ventilation should be applied to the crop immediately after harvest and throughout the curing period.
- Dry again after grading **and after application of fungicides**.



6. Apply a fungicide

Application of a fungicide **at harvest** will reduce disease levels provided tubers are not covered with soil. Fungazil or Storite Excel may be used on both seed and ware crops; Storite Super is only approved for use on seed and not for application to potatoes for human consumption. **Dry tubers thoroughly after fungicide treatment and read the product label carefully before using any product.**

7. Cure wounds

Curing is important for healing wounds caused at harvest to prevent further ingress of disease during storage. However the curing period should be no longer than 2 weeks as prolonged high temperatures favour disease. If harvest is early and temperatures are relatively high (e.g. 15°C), temperature can be reduced immediately by 1°C per day until the desired seed storage temperature is reached (e.g. 3°C), when curing should be complete. Ventilation during curing is vital to remove temperature gradients and condensation. Remember that freshly-graded potatoes must be cured before they're put into cold storage.



8. Store cold and prevent condensation

Cold storage at 3°C with adequate ventilation to avoid condensation prevents the spread of many diseases including dry rot. Seed for home planting should be kept in cold storage until grading and thereafter until pre-sprouting or planting.



9. Avoid handling potatoes for home planting after November

Tuber susceptibility to infection increases during the winter, especially from December to January due to the development of dry rot spore pustules on tuber surfaces. Grading after November increases disease risk as the spores are easily transferred from tuber to tuber.

Grading in November should be followed by cold storage until springtime so that potatoes do not have to be handled again before planting. The crop should be cured again for 10-14 days between grading and cold storage, otherwise damage done at grading will not heal.

Grading into store at harvest should be avoided if the harvested crop is wet, or blight or blackleg is present. Under such conditions there is a high risk of spreading disease throughout the stock.

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