# Pulse Agronomy Network~ *Partnership in Industry*

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## 1. Safe Handling Of Pulse Crops During Seeding

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- Unfortunately, the quality of seed you have today has been determined by many factors at last fall's harvest, storage, cleaning and moving operations. Such factors as delayed harvest (sprouting, wetting/drying of the seed), frost, handling (auger use times), temperature during handling, and the seed moisture content have all affected your seed quality.

- Seed quality for planting includes high germination, high seed vigor, and low levels of seed borne diseases such as ascochyta, anthracnose, and botrytis.

- The lower the seed moisture content, the greater the probability of damage to the seed at planting times regardless of the pulse species.

- Also, the larger the seed, combined with low seed moisture content, the greater the chance of seed damage during handling.

- During the seed germination and vigor tests, results will include amount of mechanical damage which includes cracks in the seed coat, loose cotyledons and damage to the future primary roots, hypocotyls or epicotyls.

- Research has shown that belt conveyors are superior compared to augers and belt conveyors will minimize reduction in germination of your seed due to handling damage. Augers have been shown to reduce germination 3-12% although some producers have seen damage exceeding 20% due to a lower seed moisture content.

- Although augers can be modified with bristle flighting and run at a medium to slow speed and fairly full – augers will still cause more damage than belt conveyors and belts are a must have for Kabuli chickpea, all dry beans, and low moisture pea seed (less than 12% moisture content).

- PAMI has conducted tests on moisturizing pulse seed to reduce seed damage during handling. Their results suggest the use of a direct contact approach of adding water to the pulse seed to coat the seed and help reduce further damage.

- Use of liquid and peat based inoculants applied with a sticker can also cushion the seed by adding a coating around the seed. However care must be taken to ensure that the inoculation process does not increase seed damage due to high auger speeds, less than full auger, and high auger angle.

- PAMI has conducted tests on air seeder damage to pulse seed and with a well- maintained air seeder operated at correct air speeds, the amount of seed damage can be as low as 3%. This, however, still means calculating seeding rates to include this 3% reduction.

- High airflow, missing rubber parts in the manifolds and sharp corners in the delivery system can increase seed damage to over 20%. Always check seed exiting the seeder for damage.

- Handle all pulse seed as gently as possible and try to reduce the number of handlings if at all possible.

- Recalibrate seeding rates to take into account losses of seed emergence due to damaged seed caused by low seed moisture contents.

  Agricultural Technology Centre reports;

  Air Seeder Damage to Pulses
  http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/eng3140?opendocument

  Moisturizing Pulses to Reduce Damage
  http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/eng3137?opendocument