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PULSES

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Pulses are a group of legume grain crops that include Field peas, Chickpeas, Lentils, Faba beans and Lupins. Each is managed differently in the paddock, and their unique grains are consumed in food uses.

Paddock selection

Pulses grow well sown after cereal or oilseed crops, ideally with surface stubble cover. They benefit the following crop through herbicide rotation and providing a disease break, residual moisture and soil nitrogen contribution (depending on crop biomass or soil nitrogen status).

Most pulses grow best on deeper clay- loam soils with high water holding capacity. Each pulse has different soil type needs, ranging from acidic sands (for Lupins) to heavy clay soils of high pH (eg Faba beans).

Variety

Crop type, markets, yield, disease reaction and maturity, along with lodging and shattering resistance need be considered in choosing a pulse variety. Segregation of market type occurs, and some attract a price premium.

chana dhal from chickpeas

green lentils

faba beans

dun peas

green peas

Crop establishment

Quality seed is vital for pulse crop establishment. Conventional cereal equipment is used for pulses. Sowing into cereal stubble is important to protect the soil from moisture loss and erosion during growth and after harvest.

Optimum sowing date varies with each pulse, ranging from before or on the seasonal break (Faba beans or Lupins) to being the last crop sown (eg Field peas). All pulses are well suited to no-till, reduced tillage and stubble retention systems, and benefit from friable soil.

Timely sowing is important for each pulse to manage their diseases and to maximum yield. Early sowing may result in a bulky crop conducive to foliar disease, frost or poor pod set. Late sowing might result in poor yields due to moisture stress.

Sowing rates vary with seed size, germination percentage, crop type, sowing time and disease expectations. Wider rows (25-75cm) than traditionally used (15-18cm) provide better canopy management, suits stubble clearance, can enable better weed control, improves light penetration through the canopy and allows air movement between the rows to assist disease and pod set.

Surface rolling or flattening of clods and ridges caused by sowing is often required to allow safe herbicide application and efficient grain harvest at ground level.

Inoculation

Each pulse crop requires its own strain of applied rhizobium to ensure nodulation and its nitrogen fixation. Inoculant can be applied either on seed, in-furrow by water injection or in granular form.

Disease Management

Effective disease management relies on selection of a variety with the most suitable disease resistance, most suitable paddock, clean seed, best agronomic practices and canopy management, as well as the use of fungicides. Crop damage from machinery can cause disease or poor grain quality, so controlled traffic helps to confine machinery to the same wheel tracks.

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Weed control

Weed control is more than herbicide use, starting with low weed seed numbers. No-till farming results in fewer incorporated weed seeds and earlier, less staggered germinations. Weeds are controlled as early as possible, and at the correct growth stage. Herbicides are applied while crop canopies allow adequate spray coverage of weeds.

Early crop competition reduces weed impact. Crop topping to prevent escaped weeds setting seed help makes pulses a robust part of a crop rotation.

Nutrition management

Pulses are self sufficient for nitrogen when well nodulated. Phosphorus is applied to replace grain removal and soil tie-up. Tissue testing detects the need to apply trace elements.

Pest management

Various insect pests need controlling in pulses from establishment through grain fill and in grain storage. An integrated pest management (IPM) strategy uses a range of biological, chemical and cultural control practices combined. Beneficial organisms include parasites, predators and insect diseases.

Pollination

Some pulses like faba beans and lupins cross pollinate and require insect pollinators to maximise seed set. Introducing commercial pollinating bees through the crop in a grid assists.

Weather Impact

Seasonal conditions impact on pulse crops yield and grain quality, none more severe than rainfall. Detrimental factors include frost, excessive heat at flowering, hail, lodging, water-logging, disease, insects and weeds.

Harvesting

Desiccation or windrowing pulse crops assists in even ripening and to 'brown off' late weeds to allowing earlier and easier harvest. Crop topping controls seed set of escape weeds.

All pulses should be harvested as soon as they are ready. Windrowing, desiccation or crop topping enables even earlier harvest. Care with harvest and handling is critical as human food markets demand a quality grain without cracking, staining, de-hulled seeds or insect damage.

kabuli chickpeas

desi chickpeas

lupins

red lentils

white peas

Storage and Marketing

National pulse receival standards ensure that pulse crops are delivered to user expectations. Grain hygiene is critical, and contaminants such as insects, weeds or other grains are restricted. Animal excreta, rodent carcasses, mouldy grain and odours are totally unacceptable.

Growers deliver their pulse grain to silo facilities, direct to processors or store them on farm for later delivery marketing and delivery.

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