Sugar Research Australia

sugarcane SOIL

Burdekin

SOYBEANS SUMMARISED AGRONOMIC INFORMATION

VARIETIES (BURDEKIN BEST PERFORMING)	• Leichhardt, Stuart, A6785
IDEAL PLANTING TIME (GRAIN)	• December
PLANTING WINDOW (GREEN MANURE)	• November – mid January
GROWING SEASON	• 4–5 months
EARLY MATURITY	• A6875
YIELD **RANGE** **BUDGETING** **BURDEKIN RECORDED AVERAGE**	• 1.5 – 4t/ha • 2 – 2.5 t/ha • 2.5-3.5t/ha (irrigated crops)
GROSS INCOME	• $750 – 2000/ha • Unlike mungs, soybeans do not require grading if not aiming for food grade. However, food grade soy contracts can be worth 20-30% more.
CLIMATIC TOLERANCE	• Soybeans (in particular Stuart) are tolerant to waterlogging and rainfall has little to no effect on pods as opposed to mungs in which the crop can be lost if rainfall occurs after spray out. • Plan planting/harvesting for low wet weather risk period.
SOIL	• Best on a soil pH>5.8 – Liming recommended for acid soils of pH<5.5. • In acid soil where the pH is 5.5 or less, aluminium and/or manganese toxicity may occur. • Avoid poorly drained soil. • Low water holding capacity soils increase risks of water stress at flowering and grain filling stage.
CULTIVATION	• Mound planting recommended. • Rows spacing 50–90 cm or 20–30 cm for high yielding irrigated crops (increase lodging risk – undesirable for grain crop). • Zero till not recommended unless using controlled traffic (all machinery).
PLANTING	• Sowing rate: 60–73 kg/ha equivalent to 32–38 kg/ha at 90 cm row spacing, 26–31 kg/ha at 75 cm, 17–21 at 50 cm, 10–12 at 30 cm. • Inoculate appropriately with soy specific rhizobia (mix inoculant to seeds thoroughly as recommended). Check for expiry date and green tick logo (i.e. quality assurance and independent testing – Australian Inoculants Research Group). • Depth 30–50 mm on medium clay soils – 30 mm max on wetter or hard setting soils. • Avoid roller or press-wheels that press directly over row after sowing.
NUTRITION	• Always carry out a soil test before planting. • Many soils do not require additional fertiliser following sugarcane however: • Soybeans will respond to phosphorus (P) and potassium (K) in deficient soils. • Sulphur (S), calcium (Ca), zinc (Zn), copper (Cu) and molybdenum (Mo) may also be required. • If/when required band fertiliser below and to the side of the seed.
IRRIGATION	• If water is limited target seedling establishment, flowering, pod-set and late grain-fill. • Irrigated high-yielding crop will require a total of 6–8 ML/ha irrigation and rainfall. • Seasonal conditions and soil type dictate irrigation frequency but it is generally recommended to irrigate after every 60 mm net pan evaporation.

WEEDS	• Highly susceptible to weed pressure (even low pressure can significantly affect yield). • Avoid blocks with known broad leaf weeds history. • Select crop, planting rate and inter-row cultivation to reduce reliance on chemicals. • The use of pre-emergent herbicide is recommended over post-emergent herbicides except in the case of selective grass-weed control. • Herbicides registered for weed control in soybeans: https://www.daf.qld.gov.au/plants/field-crops-and-pastures/broadacre-field-crops/soybeans/weeds,-pests-and-disease-management.
INSECTS	• Pod-sucking bugs (e.g. green vegetable bug (GVB)) are usually the major insect pest in north Queensland. They can significantly reduce yield and seed quality, with most yield loss occurring within the first two weeks of pod-fill. Spraying (crushing-grade soybeans) should ideally occur within this timeframe. • Prior to flowering, soybeans can tolerate up to one-third leaf loss without yield penalty. Helicoverpa larvae do most economic damage by feeding on buds, flowers and pods. • Infestations can be reduced by maintaining beneficial insects. These can be preserved by using ´soft´ insecticides (including Bt and virus formulations) where possible; Hard chemicals should be considered as last resort. • Avoid planting soybeans in high-risk areas adjacent to already infested vegetable crops such as capsicums and sweet potato.
DISEASES	• Susceptible to bacterial and fungal diseases (i.e. seedling root rots: rhizoctonia, pythium and phytophthora; charcoal rot: macrophomina and sclerotinia stem rot). • Leichhardt susceptible to rust: cool, moist conditions with temperatures +/-25°C promote disease (can cause significant yield losses). • Purple seed stain caused by fungal pathogen Cercospora is common in coastal crops (Planting poor-quality seed with a high incidence of seed stain can exacerbate this disease/ lead to yield reductions and downgrading of grain quality in wet years). • Other diseases: downy mildew and bacterial blight.
HARVESTING	• Crops with green weed problems at maturity may require desiccation prior to harvest (Reglone® or Round-Up PowerMax recommended but not for seed crops). • Rotary threshing headers produce superior grain quality however conventional headers with a rasp-bar drum can also be used if correctly adjusted. • Harvesting at slow ground speeds (4 km/h) and using a floating cutter bar aids crop recovery. Reduced drum speeds (300 rpm) and an open concave restricts cracking of beans. Harvesting at higher moisture levels (16-18%) and using a grain drier can further reduce potential losses. • Harvesters/mulchers recommended to chop up the organic matter before spreading it out to assist in the breakdown. • Organise skilled header operators, grain storage, batch driers, cleaning facilities and transport in advance. To minimise grain damage use belt or bucket elevators, or large diameter augers for grain handling.
LIMITATION	• Big crops leave substantial biomass behind and can delay planting of cane. If residue isn't managed correctly, poor cane strike and reduced yield may occur. • Some varieties can be susceptible to nematode pressure (I.e. Leichhardt is highly susceptible to Root Knot Nematode)

Adapted from QDAF and Farmacist information – see the reference section in *Legume Fallow – Burdekin.*

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