



## OUTSTANDING QUALITIES

- ◆ MEDIUM MATURING, SHORT DAY HYBRID
- ◆ EXCELLENT YIELD POTENTIAL
- ◆ HIGH QUALITY, UNIFORM, GLOBE-SHAPED BULBS
- ◆ ATTRACTIVE GOLDEN BROWN TUNIC
- ◆ FIRM BULBS WITH MULTIPLE SCALE LEAVES
- ◆ EXCELLENT ROOT DISEASE RESISTANCE AGAINST SOIL-BORNE PATHOGENS

**Hoshi** is a mid-maturing, short day yellow onion variety. **Hoshi** produces firm, uniform, globe-shaped bulbs with neat, thin necks. **Hoshi's** bulbs have two strong tunics each with good retention and an attractive golden brown colour. **Hoshi** is a vigorous grower with high yield potential and good bolting tolerance. In addition, **Hoshi** has a high resistance to the soil-borne fungal pathogens; Pink root (*Phoma terrestris* syn. *Pyrenochaeta terrestris*) and Fusarium basal plate rot (*Fusarium oxysporum* f. sp. *cepae*). **Hoshi** is suitable for direct seeding as well as seedling transplants.

## SPECIAL VARIETAL REQUIREMENTS

- **Hoshi** has a vigorous root system – Nitrogen-based fertilisers late in the growing season should be strictly managed
- Contact area representative for a local sowing guide

CHARACTERISTIC*	HOSHI
KIND AND TYPE	F1 hybrid, mid-season, short day yellow onion ( <i>Allium cepa</i> L.)
MATURITY	Medium, 21 to 25 weeks after direct seeding. Maturity depends on the sowing date, production location and seasonal variations (photoperiod and temperature).
BULB SHAPE	Globe to high globe
BULB SIZE	Medium to large (50 - 90 mm) – bulb size is influenced by the plant population
BULB UNIFORMITY (SHAPE AND SIZE)	Very good
BULB NECK SIZE AND QUALITIES	Medium to small (thin) and tight
BULB FIRMNESS	Very good
BULB TUNIC (SKIN/SCALE LEAF) COLOUR	Attractive colour: golden brown
TUNIC RETENTION AND QUALITY	Very good and tough – multiple outer scale leaves reduce bruises during transportation
STORABILITY/SHELF LIFE	Short to moderate (2 to 3 months). Storage potential depends on the storage conditions (temperature and relative humidity).
FLESH COLOUR	White
TASTE	Mildly pungent
LEAF/FOLIAGE HEALTH AND GROWTH HABIT	Good and flagging to upright
LEAF/FOLIAGE COLOUR	Bluish-green
BOLTING REACTION	Slow – High tolerance (depends on/related to the sowing date)
DISEASE RESISTANCE (SCIENTIFIC)	<b>High resistance:</b> <i>Phoma terrestris</i> (Pt) and <i>Fusarium oxysporum</i> f.sp <i>cepae</i> (Foc)
GROWING AREA	Grown between 0 – 35° latitude. All areas South of the equator. Refer to the sowing guide for the recommended sowing period in different production areas.
AVERAGE SEED COUNT	220 - 320 seeds per gram or 220 000 - 320 000 seeds per kilogram
SUGGESTED SOWING DENSITY	Density depends on the size requirement of the bulbs and the target market/uses of the final product, however, we suggest: Final population of 750 000 - 850 000 plants per hectare
SEED REQUIREMENT PER HECTARE	<b>Direct sowing:</b> 900 000 to 1 000 000 seeds per hectare / 3.5 - 4.0 kg seed per hectare <b>Transplant:</b> 5.0 - 5.5 kg seed per hectare
MARKET USES	Bunched, fresh market, pre-pack and processing
SPECIAL FEATURES, BENEFITS AND REMARKS	Mid maturing, excellent yield potential, slow to bolt, very good storage potential and requires fewer fertilisers. The seed is available in a range of different seed sizes.

\* Characteristics given are affected by production methods such as soil type, nutrition, planting population, planting date and climatic conditions. Please read disclaimer.

**Disclaimer:** This information is based on our observations and/or information from other sources. As crop performance depends on the interaction between the genetic potential of the seed, its physiological characteristics, and the environment, including management, we give no warranty express or implied, for the performance of crops relative to the information given nor do we accept any liability for any loss, direct or consequential, that may arise from whatsoever cause. Please read the Sakata Seed Southern Africa (Pty) Ltd Conditions of Sale before ordering seed.

**Resistance:** is the ability of a plant variety to restrict the growth and development of a specified pest or pathogen and/or the damage they cause when compared to susceptible plant varieties under similar environmental conditions and pest or pathogen pressure. Resistant varieties may exhibit some disease symptoms or damage under heavy pest or pathogen pressure (HR = High resistance, IR = Intermediate resistance).

\* **Experimental:** This variety does not appear on the current South African Variety list, but has been submitted for registration.

**Recent version:** Kindly contact Sakata or Area Representative for the most recent version of this Technical Bulletin.



## GENERAL TIPS FOR ONION PRODUCTION

### Day length

All short day onion varieties require a photoperiod (day length) of between 10 - 12 h for bulb initiation; for instance, if a variety is exposed to a shorter than required photoperiod, there will be a high percentage of non-bulbing plants with thick necks. If a variety is exposed to a longer than required photoperiod, even only for a few days, the young plants will bulb prematurely, leading to reduced bulb size and yield.

### Temperature

Even though day length is the primary factor responsible for bulb initiation (to which degree an onion variety will bulb), temperature plays a crucial role in the rate of bulbing. Onions need soil temperatures of between 15 - 25°C to germinate successfully. Temperatures of between 18 - 22°C is adequate for vegetative growth, however, bulbing will be slower at lower temperatures. Fast and proper bulbing requires temperatures of between 25 - 28°C. Temperatures below 10°C are detrimental and cold damage may occur, especially if the nitrogen available in the soil is low. When temperatures are below 10°C during the bulbing stage of the growth cycle, growth will be retarded and the plants might bolt (extreme fluctuations in day-night temperatures induce bolting).

### Plant population

Plant population influences bulb size and therefore the final yield. The consumer generally prefers a medium-sized bulb (50 - 70 mm). The optimum plant population depends on the sought after/preferred marketable size, climate, soil type and planting date. The optimum plant population is between 750 000 – 950 000 plants per hectare (final stand).

**Direct sowing:** It is suggested to sow approximately 900 000 to 1 000 000 seed per hectare / 3.5 - 4.0kg seed per hectare, depending on the seed size and seed quality/germination factor (germination percentage of seed).

**Transplanting and sets:** Depending on the seed quality it is suggested to sow approximately 5.0 to 5.5kg seed for 1 hectare seedlings.

### Nutrition

Onions are sensitive to waterlogging and require well-drained soil of at least 20 cm deep. The optimal soil pH for growing onions is between 5.5 and 6.8. A low soil pH increases the occurrence of certain soil-borne pathogens such as *Sclerotium cepivorum* (White rot) and *Fusarium oxysporum* f. sp. *cepea* (Basal rot).

The ratio of nitrogen (N) to potassium (K) is very important. In onion cultivation, potassium and sulphur play an important role in the keeping ability (storage and shelf life), firmness and health of onions. It is important to keep the ratio of nitrogen to potassium at 1:1.5. Thick necks in onions are not only an indication of incorrect sowing time, excessive nitrogen (applications), but might be due to an imbalance between nitrogen and potassium. All the phosphorus (P) and most of the potassium should be broadcasted before planting. The nitrogen component of the fertiliser programme should contain 45 - 50% ammonium nitrate (N-NH<sub>4</sub>), which should be applied in the beginning of the growth phase.

Only nitrate-nitrogen (N-NO<sub>3</sub>) should be applied in the final growth phase to prevent “green shouldering” on onions and to maintain continued growth in the cooler season. On alkaline soils, ammonium sulphate nitrate (ASN) should rather be used. Onions have a relatively shallow root system; therefore, it is important to apply nitrogen on a regular basis before bulbing (swelling of bulb/scale leaves) starts.

Sulphur, boron, zinc, molybdenum, magnesium, and potassium should always be available in adequate quantities; however, onions are sensitive to high levels of chloride.

**As soon as onions tops start to collapse or “fall over”, all fertiliser applications should be stopped.**

### Onion curing

Adequate curing (windrowing or pyramid heaps) may require 2 - 4 weeks, depending on the weather (wind, temperature, humidity etc.) conditions. The best skin develops at 24 - 32°C. Curing can also be done by controlled ventilation in a storage room/warehouse by blowing heated air through the bottom of the onion pile to the top, at 9 - 15 cubic metres per minute per ton.

Onions are considered cured when the neck is tight and the outer scales are dry and make a rustling sound when handled. This condition is reached when onions have lost 3 - 5 % of their weight. If not adequately/properly cured, onions are likely to decay in storage.

### Disease reaction definitions:

**Resistance:** is the ability of a plant variety to restrict the growth and development of a specified pest or pathogen and/or the damage they cause when compared to susceptible plant varieties under similar environmental conditions and pest or pathogen pressure. Resistant varieties may exhibit some disease symptoms or damage under heavy pest or pathogen pressure. Two levels of resistance are defined:

**High/standard resistance (HR):** plant varieties that highly restrict the growth and development of the specified pest or pathogen under normal pest or pathogen pressure when compared to susceptible varieties. These plant varieties may, however, exhibit some symptoms or damage under heavy pest or pathogen pressure.

**Moderate/intermediate resistance (IR):** plant varieties that restrict the growth and development of the specified pest or pathogen, but may exhibit a greater range of symptoms or damage compared to resistant varieties. Moderately/intermediately resistant plant varieties will still show less severe symptoms or damage than susceptible plant varieties when grown under similar environmental conditions and/or pest or pathogen pressure.

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