



SAKATA®

BEEET



MASTER GUIDE



TABLE OF CONTENTS

3	Where Did Beets Originate?	11	Beet Flavor
4	Color & Root Shape	12	Physiology & Agronomy of Beets—The Technical Nature of Beets
5	Rooted in Excellence	14	Relative Root Maturity
6	Sakata's Beet Program	15	Beets at a Glance
7	Seed Production Trends	17	Physiological Disorders
8	Growing Conditions & Adaptability	18	Diseases
9	Usage & Versatility	20	Varieties
10	Packed with Purpose	23	Contact

Where did BEETS ORIGINATE

Sakata's beet program is built to support growers with dependable, high-performing varieties across a range of market segments. With breeding roots that trace back to our longstanding commitment to innovation, Sakata has developed beets that combine vibrant color and excellent flavor, with strong field performance and reliability—reflecting the origins and evolution of beet development at Sakata.

ORIGINS:

- ✓ Genus: BETA
- ✓ Species: VULGARIS
- ✓ Derived from the WILD BEET, or SEA BEET, grown on the coasts of Eurasia

ORIGINATED IN THE MEDITERRANEAN

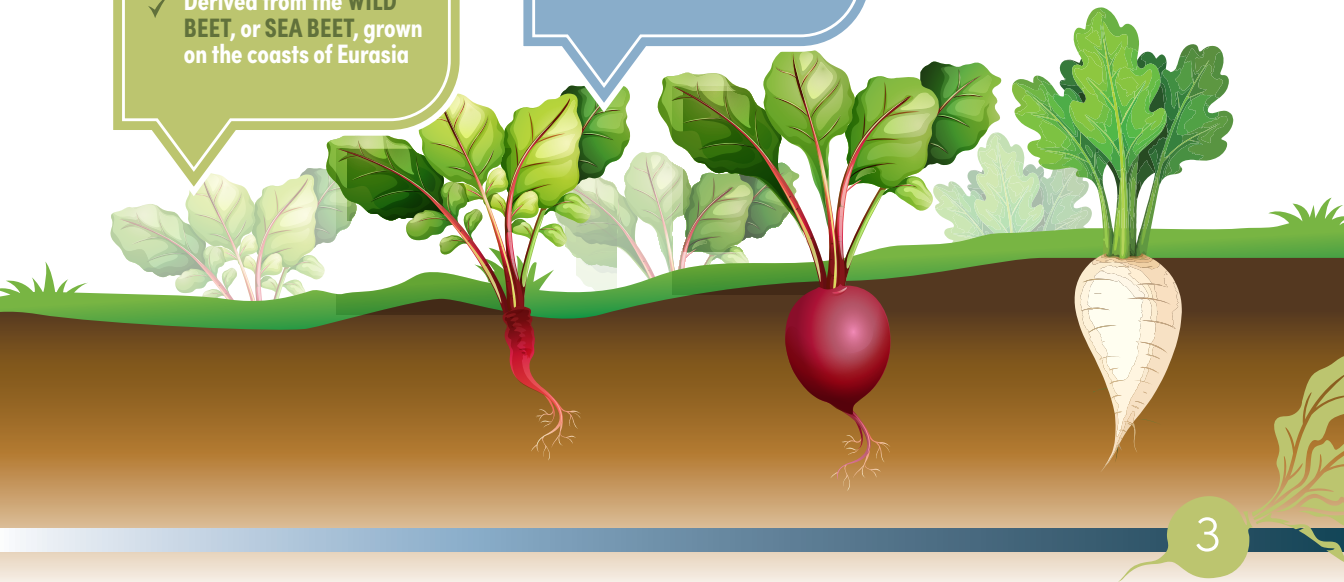
- ✓ First cultivated for their edible leaves
- ✓ At the end of the 15th CENTURY, beets started being used for their roots

SUGAR BEETS

- ✓ Originally long, pointed WHITE ROOT
- ✓ Developed by Prussians for its sugar in the 18th CENTURY
- ✓ Provides almost HALF of the world's sugar

Sweet Innovation

Originally contained 6% sugar content. Today, it has been cultivated to contain up to 20% sugar content, reducing the need to import sugar cane.



Color & ROOT SHAPE

Sakata focuses its beet breeding to span across a range of colors and shapes to meet shifting market needs, with round-red beets being the most common type of table beet consumed worldwide.

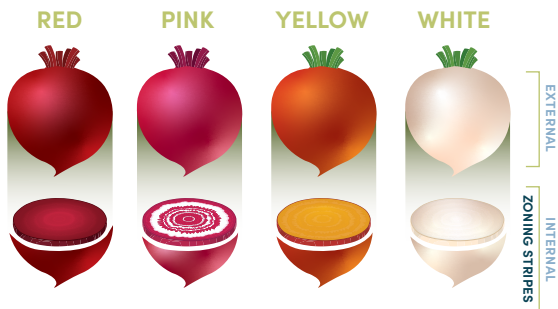


COLOR

Historically, beets appeared only in black and white. Today, along with deep red beets, white and yellow are also commonly cultivated.

The vibrant red and yellow colors of the beet roots are due to the presence of Betalains, a broad class of water-soluble nitrogen-containing plant pigments. Betalains are subdivided in red violet betacyanins and yellow orange betaxanthins.

Betanin is the major, most common type of betacyanin, accounting for 75–95% of the pigment in red beets.



SHAPE

The conical beet was the dominant form just a few centuries ago, gradually giving way to the globe-shaped variety familiar today through generations of careful selection by farmers and breeders.

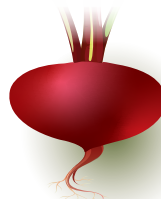
CYLINDRICAL



ROUND/GLOBE



FLAT/EGYPTIAN



Sakata drives innovation in breeding to develop superior varieties that combine broad adaptability, consistent performance, and value across the supply chain—from growers and processors to consumers.

Rooted in EXCELLENCE



Red Ace

Red Ace's wide adaptability and high yield potential have made it an industry leader. Red Ace is known for its uniform, smooth top-shaped roots, heavy yields and consistent performance.

KEY FEATURES:

- Widely adapted and uniform
- Organic and non-organic seeds available



Merlin

Merlin offers higher sugar content (12-15%) in comparison to standard beet varieties. Its high sugar content makes it a perfect choice for processors, fresh market growers or home gardeners. Merlin has smooth, red, globe-shaped roots with small-medium crowns and tap roots.

KEY FEATURES:

- Very good flavor, high brix (12-15%)
- Nice red globe-shaped roots
- Great for processing and fresh market



Touchstone Gold

Touchstone Gold has vibrant yellow to golden, smooth, globe-shaped roots. It has medium-sized crowns and tap roots. This variety is mid to late maturing. Touchstone Gold's roots have little to no zoning. It has a delicious, mild, sweet flavor.

KEY FEATURES:

- Vibrant yellow internal color
- Mild sweet flavor
- Great for fresh, home garden and specialty markets



Gemini

Gemini is a new commercial variety, selected for its excellent root quality for the fresh market with its smooth, uniform globe-shaped root that is dark red in color. Performs well in cool and warm humid areas.

KEY FEATURES:

- Excellent root uniformity for greater yield
- Appealing root quality with dark red color
- Smooth skin and well-defined shoulders



Borealis

Borealis offers an excellent disease package with intermediate resistance to rhizomania (BNYVV) and rhizoctonia (Rs). This beet has great root uniformity and good internal root quality with high sugar content and deep red color. It's ideal for many regions, showing consistent performance across climates and soil types. Borealis maintains brix levels during storage and under rhizomania infection.

KEY FEATURES:

- Processing-type hybrid with IR resistance to Rhizomania and Rhizoctonia
- Uniform globe-shaped roots
- Red interior and exterior

SAKATA'S BEET PROGRAM

Sakata's beet root breeding program, based in Skagit Valley, Washington, has a 40-year history beginning with Red Ace, the first hybrid beet introduced by Alf Christianson Seed Co., which became a subsidiary of Sakata in 2002.

Sakata Seed America is a historical leader in beet seed breeding, production, and commercialization. Beet is a key crop for Sakata globally, with seeds distributed across all major production regions.



SEED PRODUCTION TRENDS

- ✓ In the USA, Sakata contracts with local farmers to produce seeds in the Skagit Valley.
- ✓ Skagit Valley provides the ideal microclimate needed to accommodate the production of high-quality beet seeds.
- ✓ Growers in the Skagit Valley and neighboring counties produce 95% of the US beet seed supply and 25% of the global beet supply. They have developed innovative cultural practices along with a close relationship with Washington State University research scientists and Extension professionals.
- ✓ The proximity of the Sakata PNW facility's location in Skagit Valley allows for local breeding, seed production and distribution, creating quicker turnaround and a smaller carbon footprint.
- ✓ Beets are a biannual crop; plants need to be vernalized to trigger flowering and seed production during the second year. It takes around 20-24 months from planning to seed commercialization.



**BEET IS A
WIND-POLLINATED CROP**
POLLEN CAN TRAVEL OVER
LONG DISTANCES OF UP TO
TWO MILES, REQUIRING CROPS
TO BE ISOLATED FROM EACH
OTHER TO PREVENT UNWANTED
CROSS-POLLINATION.

**DID
YOU
KNOW**

Growing Conditions & ADAPTABILITY

- ✓ Beets are a highly adaptable crop, grown on six different continents.
- ✓ Beets are grown across a wide range of climates, making them adaptable to both warm and cool growing conditions.
- ✓ In cooler climates, they're harvested in the fall and often stored through winter.
- ✓ In warmer climates, beets are produced in multiple cycles in the growing season and sold in fresh markets.
- ✓ Varieties with high sugar content can be stored under a controlled environment for an extended period when harvested at full maturity.

SOIL

- Ideal soil pH for beets is around 6.0 to 6.8. Beets experience nutrient limitations in highly acidic or highly alkaline soils.
- Beets grow best in loose, loam, muck and sandy soils.
- Heavier soils will slow down root maturity.

WATER REQUIREMENTS

- Beets require moisture at sowing for crop establishment but are usually drought hardy and can be grown under irrigated or dryland conditions. Drainage is recommended for optimal root quality.

KEY NUTRIENTS

- **Boron** deficiency causes tissue death in beet roots, a condition known as black heart. Boron should be applied to deficient soils and may also be applied as a foliar spray.
- Beets are **nitrogen-demanding** and require sufficient nitrogen to support healthy leaf and root development.

SOWING WINDOW

- Beets should be sown when soil temperature is above 50°F.
- Early spring sowings can be protected from frost with a floating row cover.

END USE

- Fresh market crop is typically sown in the spring and harvested in early summer. Beets intended for storage or processing are typically sown in late spring or early summer and harvested in the fall.

Usage & VERSATILITY

Beets are a versatile and nutritious vegetable with a wide range of culinary uses, from fresh salads featuring both the root and foliage to traditional dishes like Borscht, the classic Eastern European soup. Their rich nutritional profile makes them a valuable addition to any diet.

Beets can be enjoyed in many forms, including raw, juiced, steamed, roasted, pickled, fermented, and dried. Ready-to-use steamed and peeled beet roots have grown increasingly popular in both Europe and the United States, with packaging innovations such as vacuum packs, cans, and glass jars helping to extend shelf life and drive consumption.



EASTERN EUROPE

A STAPLE INGREDIENT IN BORSCHT,
A BELOVED EVERYDAY SOUP



MEXICAN CUISINE

FEATURED IN ENSALADA DE NOCHE BUENA,
A TRADITIONAL CHRISTMAS EVE SALAD



PACKED WITH PURPOSE

Beets have earned their reputation as a nutritional powerhouse. Rich in antioxidants and essential vitamins, they are widely regarded as a nutrient-dense **SUPERFOOD** with wide-ranging benefits for overall health and well-being, from supporting heart health to boosting brain function.



NITRATE:

Beets are naturally rich in nitrates, which play a key role in widening blood vessels and improving blood flow, helping deliver more oxygen throughout the body. This makes nitrate-rich beetroot juice and powder popular, evidence-based supplements for enhancing athletic performance and may also explain why beets are often recommended as a natural way to support healthy blood pressure.



VITAMINS A, C, FOLATE (B9), AND FIBER:

Beets are a good natural source of vitamins A, C, folate (B9), and fiber — nutrients that collectively support eye health, immune function, healthy digestion, and cell growth, making them a well-rounded addition to a balanced diet.



BETALAINS:

Beets are a natural source of betalains, making them a healthier substitute for artificial dyes. A dried and powdered form of the root is used as a commercial food coloring, commonly found in dairy products, beverages, and other foods.

BEET FLAVOR

Beets are commonly described as having a sweet, rich, and earthy flavor due to their production of geosmin, the compound responsible for their distinctive earthiness.



MERLIN

- ✓ Naturally has low Geosmin content, high sugar content
- ✓ Very sweet flavor profile
- ✓ High brix: 12-14



TOUCHSTONE GOLD

- ✓ Mild, sweet delicious flavor
- ✓ Medium-high brix: 7-10



COOKING MAY INCREASE THE SWEETNESS OF THE ROOTS AND ENHANCE THE FLAVOR PROFILE. PAIRING BEETS WITH CHEESE, HERBS, NUTS OR ACIDIC FOODS MAY EITHER BALANCE ITS NATURAL FLAVOR OR ELEVATE ITS NATURAL SWEETNESS.

DID
YOU?
KNOW

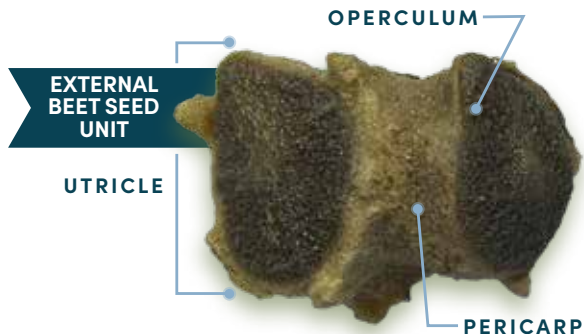
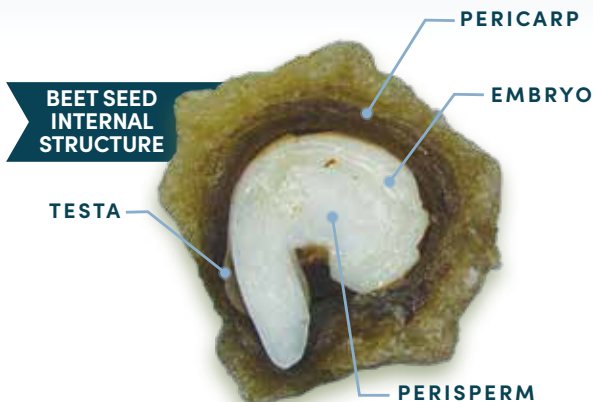
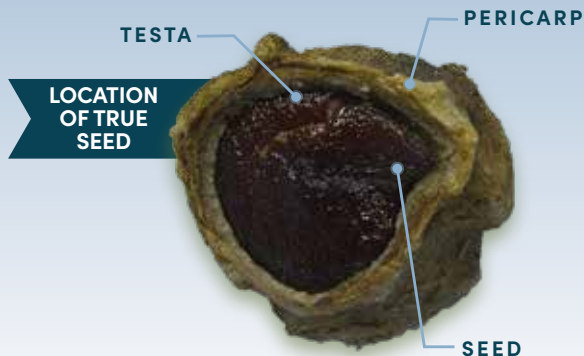
Physiology & Agronomy of Beets

THE TECHNICAL NATURE OF BEETS

POLYEMBRYONY

One of the most distinctive characteristics of beet seed is its **polyembryony**, which directly influences root uniformity and earliness.

Unlike most crops, which contain just one embryo per seed (monogerm), beet seed units are **Multi Germ**, containing multiple embryos that can each produce their own sprout upon germination.



Physiology & Agronomy of Beets

THE TECHNICAL NATURE OF BEETS

SPROUT COUNT

Sprout Count is the average number of normal seedlings present per seed unit.

- ✓ Sprout count (sometimes called a seedling count) is a term widely used in the industry to determine planting population.
- ✓ In most cases, a single beet seed unit will produce more than one seedling, with up to four viable embryos per seed.
- ✓ Sprout count varies by size and variety. Generally, larger seeds contain a higher number of viable embryos, while smaller seeds tend to produce fewer sprouts.
- ✓ **Smaller seed sizes are well suited for precision planting, while larger seed sizes with higher sprout count can help reduce the cost of production per acre.**

Though the outcome of the sprout count is influenced by germination, the final sprout count from a test is a stand-alone number.

- ✓ **Germination (%):** total number of seed units that produced 1 normal seedling. Any single beet cluster that produces at least one normal seedling is classified as germinated and counted as one.
- ✓ **Sprout count:** average number of seedlings produced for each seed unit.
- ✓ **Example:** 20,000 seed sample lot with a sprout count of 2.12.

Regardless of germination, the lot has an average of 2.12 seedlings for each seed unit. There is approximately a total of 44,000 seedlings in the sample lot, germination percentage is not required for the calculation (sprout count * number of seed in the sample lot).

CONTACT US

PLEASE CONTACT YOUR SALES TEAM
FOR ADDITIONAL INFORMATION
REGARDING THE SPROUT COUNT OF
YOUR BEET LOTS.

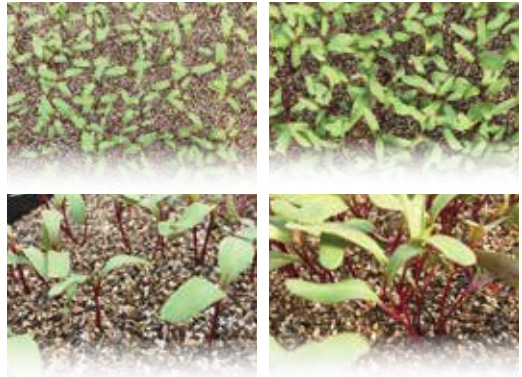
503-414-9983

sakatavegetables.com/contact-us

PLANT POPULATION is determined by the intended crop usage—whether for baby, processing, or fresh market—as well as the desired harvest window. Commercial beet root producers typically use sprout count to calculate their target planting population. The following calculation is recommended, though some producers may also factor in germination percentage.

- ✓ **Seedling rate (lbs/acre):** Desired plants per acre / (Seed count x sprout count)
 - Example: Desired plants per acre 500,000
 - Sprout count: 1.7
 - Seed Count: 30,000 seeds per lb
 - Seedling rate (lb/acre)= 9.8 lb per acre

PRECISION SEEDING MINIMIZES MANUAL THINNING REQUIREMENTS AND OPTIMIZES MARKETABLE YIELD



Images depict seed sizes increasing from left to right

Relative ROOT MATURITY



Commercial varieties are usually selected for various maturity rates. **CROP EARLINESS MAY BE CONTROLLED WITH PLANT SPACING, SOIL TYPE AND TEMPERATURE:**

- ✓ Beets grow continuously and do not stop at a specific size, meaning planting density plays a key role in determining root size. Crowded plants will size up more slowly than those in thinner stands.
- ✓ Sowing density varies by season and intended use:
 - Higher densities are recommended for baby beets and longer crop cycles.
 - Lower densities are better suited for spring crops and shorter cycles where larger roots are desired.
- ✓ A spacing of 2 to 4 inches between seeds in a row is generally recommended for optimal size and root quality.
- ✓ Target root size varies by market:
 - 1 to 1.5 inches for baby beets.
 - 1.5 to 2.5 inches for fresh consumption.
 - Up to 3 inches for processing and bulk markets.
- ✓ Cooler temperatures create slower root growth, while warmer temperatures accelerate.
- ✓ Soil type may influence maturity due to their physical nature, temperature, and water retention ability.
 - Colder heavy soils may delay sprout emergence in the spring season.
 - Dense soil creates mechanical resistance against root growth.

**DEPENDING ON THESE
FACTORS, MATURITY CAN
RANGE FROM 55 – 180 DAYS.**

BEET AT A GLANCE

VARIETIES	CLIMATES	DESCRIPTION	KEY CHARACTERISTICS	DISEASE RESISTANCE	TOPS	RELATIVE MATURITY	BRIX	USAGE
						★ Early ★★ Medium ★★★ Late	★ Low Brix ★★ Medium Brix ★★★ High Brix	
KESTREL	Temperate, Subtropical, Mediterranean, Continental	Kestrel's hybrid vigor leads to an early, uniform plant stand. Its ability to develop a round shape at an early stage makes it an excellent candidate for baby beet production. This variety can also be stored for extended periods of time when harvested at full maturity.	Good storage variety/ Can be used for baby beet production. Wide adaptation to different soil types and climatic conditions (hot/cold/dry/humid).		Upright habit, strong tops suitable for mechanical harvest.	Medium maturity ★★	★★★	Fresh, Processing, Baby, Storage
MERLIN	Temperate, Mediterranean, Continental	Merlin offers higher sugar content (12-15%) in comparison to standard beet varieties. Due to its high sugar content, it is a perfect choice for processors, fresh market growers or home gardeners. Merlin has smooth, red, globe-shaped roots with small-medium crowns and tap roots. Organic and non-organic seeds available.	Very good flavor, high brix (12-15%). Nice red globe-shaped roots. Good choice for processing, storage, and fresh market.		Strong tops suitable for mechanical harvest.	Early (spring) to medium maturity ★★	★★★	Fresh, Processing, Baby, Storage
RED ACE	Temperate, Subtropical, Mediterranean, Continental	Red Ace's wide adaptability and high yield potential have made it an industry leader for the fresh and processing market. Red Ace is known for its uniform, smooth top-shaped roots, heavy yields and consistent performance.	Widely adapted and uniform. Organic and non-organic seeds available. Reliable yields and widely adaptable. Leading variety in the US.		Strong tops suitable for mechanical harvest.	Early (spring) to medium maturity ★★	★★★	Fresh, Processing, Baby, Storage
AZUMA	Temperate, Subtropical, Mediterranean, Continental	Hybrid with attractive dark red exterior, smooth skin, and globe shape. It has a semi-upright plant habit, matures early and is quick to round out, making it a great option for baby beets. Azuma is heat tolerant and performs best under warmer weather conditions in the summer slot.	Attractive dark red color, smooth skin, and globe shape. New variety with improved horticultural traits for the fresh and processing markets. Thrives best in our trials in warmer growing conditions in summer slot.		Semi-upright medium height, strong tops suitable for mechanical harvest.	Medium maturity ★★	★★★	Fresh, Processing, Baby, Storage
BOREALIS	Temperate, Subtropical, Mediterranean, Continental	Borealis is our newest beet offering an excellent disease package with intermediate resistance to rhizomania (BNYV) and rhizoctonia (Rs). This beet has great root uniformity and good internal root quality with high sugar content and deep red color. Borealis maintains brix levels during storage and under rhizomania infection.	Processing-type hybrid with intermediate resistance to Rhizomania and Rhizoctonia. Uniform globe-shaped roots. Red interior and exterior.	IR: BNYV / Rs	Strong tops suitable for mechanical harvest.	Medium to late maturity ★★★	★★★	Fresh, Processing, Baby, Storage
CHIOGGIA GUARDSMARK	Temperate, Mediterranean, Continental	Chioggia Guardsmark offers a vivid pink and white interior zoning, along with a mild sweet flavor. This beet is appealing to the fresh market, specialty growers and home gardeners. The roots have a flattened-globe shape, a medium-sized crown and a medium-sized tap root. Organic and non-organic seeds available.	Pink variety with good flavor. Internal root color white with purple rings. Attractive heirloom variety for fresh markets.		Medium tops, light green leaves with light white to light pink color.	Early (spring) to medium maturity ★★		Fresh

Disease Terminology: HR = High Resistance; IR = Intermediate Resistance • **Disease Abbreviation Code:** BNYV - Rhizomania, Cb - Cercospora Leaf spot, Rs - Rhizoctonia crown & root rot, Ss - Common scab.

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 crop performance relative to the information given; nor do we accept any liability for any loss, direct or consequential, that may arise from any cause. Read all seed package labeling as it contains Sakata Seed America, Inc. terms and conditions of sale.

AT A GLANCE BEET

★ Early
★★ Medium
★★★ Late

★ Low Brix
★★ Medium Brix
★★★ High Brix

VARIETIES	CLIMATES	DESCRIPTION	KEY CHARACTERISTICS	DISEASE RESISTANCE	TOPS	RELATIVE MATURITY	BRIX	USAGE
DETROIT SUPREME	Temperate, Mediterranean, Continental	Detroit Supreme offers many improved plant characteristics over traditional Detroit types. It has a smooth, dark red, globe shaped root with medium tops. It has a refined medium sized crown and tap root.	Improved root characteristics.		Refined attachment, medium tops.	Medium maturity ★★		Fresh, Home Gardens
GEMINI	Temperate, Subtropical, Mediterranean, Continental	Gemini is a new commercial variety, selected for its excellent root quality for the fresh market with its smooth, uniform globe-shaped root, that is dark red in color. Performs well in cool and warm humid areas with heavy soils.	Excellent root uniformity for greater yield. Appealing root quality with dark red color. Smooth skin and well-defined shoulders.		Refined attachment, medium tops.	Early (spring) to medium maturity ★★	★★	Fresh, Processing, Baby
TOUCHSTONE GOLD	Temperate, Mediterranean, Continental	Touchstone Gold has vibrant yellow to golden, smooth, globe-shaped roots. It has medium-sized crowns and tap roots. This variety is mid to late maturing. Touchstone Gold's roots have little to no zoning. It has a mild, sweet flavor that is delicious. Organic and non-organic seeds are available.	Unique and mild flavor profile. Intense yellow internal color, attractive yellow orange outside color. Great for fresh, home garden and specialty markets.	IR: Cb	Medium-tall tops, light green leaves with light pink petiole.	Medium maturity ★★	★★★	Fresh, Baby
UDINA	Temperate, Subtropical, Mediterranean, Continental	Udina is a cylindrical beet variety that has a very smooth, dark red exterior and a sweet taste. This variety offers a superior foliar and root disease resistance package. Its excellent root uniformity and top strength make Udina ideal for slicing and processing.	Very smooth, dark red exterior. Innovative disease resistance package. Experimental # SBE2102.	HR: Rs \\\IR: Cb / Ss	Medium tall tops, strong attachment, robust foliage.	Medium maturity ★★	★★★	Fresh, Processing, Baby, Storage
CASSIUS	Temperate, Subtropical, Mediterranean, Continental	High quality round red variety with great disease resistance package. Highly productive mid-early variety with appealing globe, smooth and dark red colored roots. Small tap root & attachment making it suitable for processing.	Mid-early variety with nice globe shape. Complete disease resistance package makes it suitable for various growing conditions and markets. Good uniform maturity, high yield potential. Experimental # SBE0125.	HR: Rs \\\IR: Cb / Ss	Refined attachment, short to medium tops.	Early (spring) to medium maturity ★★	★★★	Fresh, Processing, Baby
DENALI	Temperate, Subtropical, Mediterranean, Continental	New early-medium maturity variety with small tap root & leaf insertion. Very smooth and dark exteriors. Nice internal color. Well suited for warmer growing conditions.	Early to medium maturity. Improved shape, smoothness and color. Good uniform maturity, high yield potential. More suitable for warmer production slots. Experimental # SBE8205.	IR: Rs	Refined attachment, short to medium tops.	Early (spring) to medium maturity ★★	★★	Fresh, Processing, Baby

Disease Terminology: HR = High Resistance; IR = Intermediate Resistance • **Disease Abbreviation Code:** BNYVV - Rhizomania, Cb - Cercospora Leaf spot, Rs - Rhizoctonia crown & root rot, Ss - Common scab.

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Physiological DISORDERS

Beet physiological disorders are non-pathogenic conditions triggered by abiotic environmental stressors impacting root growth, yield, and crop marketability.

FACTOR	EXCESSIVE	INSUFFICIENT / DEFICITS	PREVENTION / MANAGEMENT
Temperature	Wilting, leaf curling, zoning	Bolting (premature flowering)	• Ideal air temperature range for sowing: 10–30°C / 50–85°F • Plant when soil temperature is above 10°C / 50°F
Irrigation	Zoning, root cracking, misshaped roots, red leaves, stunted growth due to anoxic conditions	Zoning, wilting, root elongation, excessive root hairs	• Keep soil consistently moist during germination and early root development • After the 6-leaf stage, plants tolerate water stress better • Adjust irrigation by soil type: ◦ Clay soils → reduce frequency ◦ Sandy soils → increase frequency • Avoid water logging, standing water, and significant variation in irrigation • In extreme conditions, select drought-tolerant or moisture-tolerant varieties
Fertilization	Excessive foliage growth, root cracking	Deficiency: • Boron (B) → root disorders (e.g., canker) • Nitrogen (N) → chlorosis	Carefully manage Boron (B) and Nitrogen (N) during growth
Sowing Depth	Too deep: delayed and uneven germination		Ideal depth: 0.5–0.75 inches
Soil	• Too dense of soil restricts root growth (mechanical resistance) • Crusted soil impacts emergence and root shape	High sand content: nutrient deficiency risk	• Adjust irrigation, fertilization, and soil preparation based on soil profile • Consider earlier harvest in dense soils to avoid quality issues • Plant in well-drained and organic-rich soil • Crop rotation to help prevent damping-off



STRESSFUL GROWING CONDITIONS CAN REDUCE PIGMENT DEVELOPMENT IN BEETS, LEADING TO THE FORMATION OF WHITE RINGS WITHIN THE ROOT. THIS CONDITION, KNOWN AS ZONING, IS TYPICALLY CAUSED BY WATER STRESS (EITHER EXCESS OR DEFICIT) AND HIGH TEMPERATURES.

DID YOU KNOW

DISEASES

Sakata's beet disease strategy combines advanced breeding and targeted selection to deliver resilient, high-performing varieties that help growers manage key disease challenges.

Cercospora Leaf Spot (CLS) of table beet and chards

Cause: *Cercospora beticola* (Cb) (Fungus)

Spread: Infected plant debris, air borne

Alternate host: Sugar beet, mangel/mangold, spinach, chenopods

Favorable conditions: Warm and humid, susceptible cultivars

Symptoms: Small circular spots on leaves with definite margin, often deeper in color (dark brown to reddish purple) than surrounding tissues. Center of spot turns brown and later grey if sporulating. In susceptible cultivars, numerous spots are developed, entire leaf wither and die due to disease.

CLS management:

- Crop rotation (3 years), reducing plant density, avoid irrigation in evening night, plow deeply to completely bury infected tissues
- Chemical fungicides: Copper formulations (M1), Frac 3 [DMI], Frac 7+11, Frac 7+12, Frac 11 [Strobilurins]
- Resistant cultivars: CLS resistant hybrids



Rhizoctonia root rot of table beet

Cause: *Rhizoctonia solani* (RS) (Fungus)

Spread: Infected roots, mycelium and sclerotia in plant debris, plant to plant spread creating pockets in the field.

Favorable conditions: Warm soil [77-91 °F], poor soil structure and high soil moisture, susceptible cultivars

Symptoms: Black lesion develops on the crown and lower petioles. Severely infected roots can develop large regions of dry rot which is dark brown to black. Susceptible cultivars can result into complete rot of the root and death of plant.

Rhizoctonia root rot management:

- Crop rotation (3-5 years) with non-host such as grains, control soil compaction
- Chemical fungicides: not very effective to control Rhizoctonia root rot
- Resistant cultivars: Root rot resistant hybrids are effective



CONTACT

PNW Plant Pathology Lab • pathology-pnw@sakata.com

DISEASES

Beet Scab

Cause: *Streptomyces scabies* (Ss) (Bacteria)

Spread: Infected roots, mycelium and sclerotia in plant debris, plant to plant spread creating pockets in the field.

Host Range: Beet, Potato, Radish, Carrot, Parsnip, Rutabaga, Turnip

Symptoms: Randomly distributed shallow, raised or deep pitted corky lesions on root. The size and color of lesions are variable but typically lesions are brown and affect quality or market value while arial tissues of scab infected beet appears healthy.

Scab management:

- Crop rotation (3-5 years) with non-host such as grains, do not delay root harvest
- Chemical treatments: no chemicals/bactericides recommended; not economical for application
- Resistant cultivars: Scab resistant hybrids are effective



Rhizomania

Cause: Beet Necrotic Yellow Vein Virus (BNYVV) (Virus)

Spread: Infected roots, soils, *Polymyxa betae* (Vector: Fungus)

Host Range: Beet, worldwide

Favorable conditions: Soil temperatures 15-28 °C. Needs moist soils to infect. Near saturated soil with Poor drainage.

Symptoms: Proliferation of adventitious roots or bearding on the main taproot. Misshaped roots. Light brown discoloration in the center of the root (stele) and a disorganized or marbled appearance near the infected rootlets. Leaves can show yellowing. Plants can be stunted or die in heavily infested soils.

Rhizoctonia root rot management:

- Resistant cultivars: Rhizomania resistant hybrids are effective
- Prevent spread of infested soil, clean equipment
- Irrigation management



CONTACT

PNW Plant Pathology Lab • pathology-pnw@sakata.com

VARIETIES

AZUMA

Azuma is characterized by its attractive dark red exterior, smooth skin, and globe shape. It has a semi-upright plant habit, matures early and is quick to round out, making it a great option for baby beets. Azuma is heat tolerant and performs best under warmer weather conditions in the summer slot.



CHIOGGIA GUARDSMARK

Chioggia Guardsmark offers a vivid purple and white interior zoning, along with a mild sweet flavor. This beet is appealing to the fresh market, specialty growers, and home gardeners. The roots have a flattened-globe shape, a medium-sized crown, and a medium-sized tap root. Organic and non-organic seeds available.



NEW!

BOREALIS

Borealis offers an excellent disease package with intermediate resistance to rhizomania (BNYVV) and rhizoctonia (Rs). This beet has great root uniformity and good internal root quality with high sugar content and deep red color. It's ideal for many regions, showing consistent performance across climates and soil types. Borealis maintains brix levels during storage and under rhizomania infection.



DENALI

Denali is a new beet variety that features smooth skin, globe shape, and deep, dark red color. It is a mid maturing variety with high yield potential that has medium leaf tops, small tap root, refined leaf attachment, and average brix. This new variety is best suited for the fresh/processing market. Denali has wide adaptability to different climates, including continental (summer/fall), temperate (summer), and sup-tropical (dry/humid).



NEW!

CASSIUS

Cassius is a very attractive globe shape variety. It's exterior features superior smoothness and deep red color, while the internal color is an intense dark red. This beet has good uniformity in terms of maturity, a high yield potential, refined tap root and shoulders, and average brix. Its medium top and cleaner foliage make Cassius ideal for the bunch market. This variety offers a complete and novelty disease package (leaf & root) and is combined with a great skin finish and color that makes it an attractive variety for the fresh and processing markets. Cassius is widely adaptable and is suitable for continental, temperate, sub-tropical, and Mediterranean climates.



VARIETIES



DETROIT SUPREME

Detroit Supreme offers many improved plant characteristics over traditional Detroit types. It has a smooth, dark red, globe shaped root with medium tops. It has a refined medium sized crown and tap root. Detroit Supreme is a multi-use variety that can be used for processing, fresh markets, and home gardens.



EAGLE

Eagle is an early-mid maturing variety that has nice smooth uniform, globe-shaped roots. It has a small to medium-sized crown and tap root. Eagle has a medium dark red interior with little to no zoning. This variety is perfect for beet processors, fresh market growers, and home gardeners.

EARLY WONDER TALL TOP

Early Wonder Tall Top is an early-mid maturing beet variety. It has red top-shaped roots with medium-sized crowns and taproots. Early Wonder Tall Top has strong, green tops that result in easy harvesting. Its uses include processing, fresh market, home garden, or tops for baby leaf markets.



KESTREL

Kestrel's hybrid vigor leads to an early, uniform plant stand. Its ability to develop a round shape at an early stage makes it an excellent candidate for baby beet production. This variety can also be stored for extended periods of time when harvested at full maturity.



GEMINI

Gemini is a new commercial variety, selected for its excellent root quality for the fresh market with its smooth, uniform globe-shaped root, that is dark red in color. Performs well in cool and warm humid areas.



VARIETIES



MERLIN

Merlin offers higher sugar content (12-15%) in comparison to standard beet varieties. Due to its high sugar content, it is a perfect choice for processors, fresh market growers, or home gardeners. Merlin has smooth, red, globe-shaped roots with small-medium crowns and tap roots. Organic and non-organic seeds available.



RED ACE

Red Ace's wide adaptability and high yield potential have made it an industry leader. Red Ace is known for its uniform, smooth top-shaped roots, heavy yields, and consistent performance. Organic and non-organic seeds available.



TOUCHSTONE GOLD

Touchstone Gold has vibrant yellow to golden, smooth, globe-shaped roots. It has medium-sized crowns and tap roots. This variety is mid to late maturing. Touchstone Gold's roots have little to no zoning. It has a mild, sweet flavor that is delicious. Organic and non-organic seeds are available.



VULTURE

Vulture has a half-long cylindrical shape that results in high yields. This variety has dark red, smooth roots with little to no zoning. Vulture has small crowns and small tap roots. In addition, Vulture has good flavor in comparison to other cylindrical beet varieties.

NEW!



UDINA

Udina is a cylindrical beet variety that has a very smooth, dark red exterior and a sweet taste. This variety offers a superior foliar and root disease resistance package. Its excellent root uniformity and top strength make Udina ideal for slicing and processing.



Beet
Breeder

JENNA PRICE

THE SAKATA BEET PROGRAM IS BUILT ON THE CONTINUITY OF PEOPLE GUIDING VARIETIES END TO END—FROM THE EARLIEST BREEDING DECISIONS THROUGH MILLING, QUALITY ASSURANCE, PRODUCT DEVELOPMENT, AND MARKETING, IT'S THE PASSION OF THE TEAM THAT MAKES OUR BEETS GREAT.

WHILE I'M NEW IN THE BREEDER ROLE, I'VE BEEN PART OF THIS PROGRAM FOR MORE THAN A DECADE, AND I'M PROUD TO HELP CARRY THAT LEGACY FORWARD.

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