

GrainMonster 90M

Canadian Grain Pearl Millet (CGPM90) | Dwarf Type | Single-Cut Variety

- Ultra-high yield even in drought-prone non-irrigated conditions
- Profuse tillering, early maturing, even in acidic soils
- Controls root-lesion nematodes and aflatoxin contamination
- High-protein, with corn-like nutrition for poultry and hog

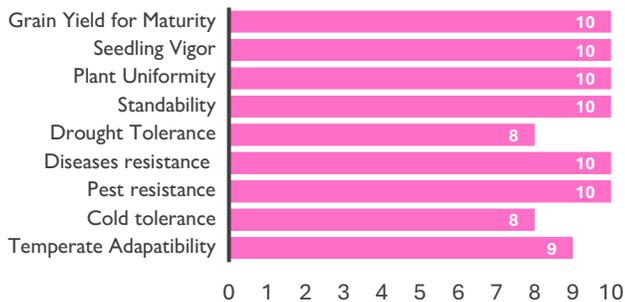
SNAPSHOT

Name GrainMonster 90M (CGPM90)

Type Pearl Millet (Garish/Yellow grain)

Development Period 12 years

Initial Release 2005

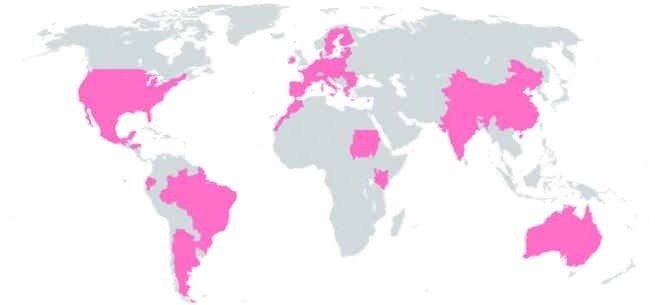


CROP USE



GrainMonster 90M is a breakthrough Canadian grain pearl millet hybrid that revolutionizes farming with its impressive 3 to 3.5 tons per hectare yields, high-protein and Omega-3 rich grains ideal for varied livestock feeds. It excels with unmatched drought tolerance, disease resistance, and lower costs compared to traditional cereals. Fast maturing and easy to grow, GrainMonster 90M offers a resilient, profitable crop choice for farmers, promising to enhance agricultural returns and sustainability in Canada and globally.

AREAS OF ADAPTATION



GrainMonster 90M takes 100 to 105 days to mature and is currently grown between latitudes 43.8°N and 49.8° N all over Canada. This crop can be grown in other countries with similar climates and soil.

FIELD POSITIONING

Tough Dryland	HS
High Yield Dryland	S
Limited Irrigation	HS
Full Irrigation	HS
Early Planting/Cold Soils*	S
No-Till	HS
Poorly Drained Soils	HS
Anthraxnose Prone Area	HS
Fusarium Prone Area	HS

Observed Suitability and Field-by-Field Positioning

HS = Highly Suitable S = Suitable MA = Manage Appropriately X = Poor Suitability

*Soil temperature should be at least 12° Celsius

CHARACTERISTICS AND RATINGS

- **Plant Height (Main Stem)** 100 to 110 cm
- **Number of Leaves** 9 to 12
- **Leaf Length** 60 to 70 cm
- **Leaf Width** 3 to 5 cm
- **Number of Tillers** 5 to 10
- **Days to Flowering:** 50 to 55
- **Inflorescence** Semi-compact
- **Seed Color** Garish/Yellow (Lustrous)
- **1000 Seed Weight** 8 to 9 g
- **Synchrony of Flowering** Uniform
- **Grain Covering by Glumes** Yes
- **Grain Form/Maturity** 100 to 105 days
- **Lodging** No lodging

PERFORMANCE COMPARISONS[†]

- **Yield:** GrainMonster 90M is early maturing (100 days), dwarf (100 cm) and yields 3 to 3.5 tons of nutritious grain per hectare, with a harvest moisture of 14%
- **Quality:** Its nutritive value is comparable to corn. Pearl millet can replace corn or sorghum in poultry, cattle and swine rations without adversely affecting feed efficiency or weight gain
- **Efficiency:** GrainMonster 90M stands out for its water use efficiency, requiring up to 70% less water compared to corn for similar biomass production/yield
- **Versatility:** On-farm demonstrations have shown that pearl millet can produce yields of 2500 to 3100 lbs of grain per acre with good management

CROP MANAGEMENT GUIDE

KEY USECASES AND FEATURES:

- High grain yield potential of 3 to 3.5 tons per hectare under non-irrigated and drought conditions even in acidic soils (pH 5.5)
- High-quality protein content of 12 to 14% and suitable for human consumption, poultry, cattle, and hog rations
- Controls root-lesion nematodes, minimizes pre-harvest aflatoxin contamination, and enhances crop resilience
- Produces eggs enriched in N-3 fatty acids
- Lower production costs versus traditional cereal crops
- Early maturing (100 days) and dwarf stature (100 cm), facilitating efficient cultivation and harvest
- Profuse tillering with synchronous maturity, optimizing yield and harvest efficiency
- Suitable for cultivation in temperate climates

SEEDING:

- **Planting:** Early plantings help avoid summer droughts. However to select the optimal week of planting, ensure that the soil temperature remains at least 18°C consistently, even overnight. **CRITICAL**
- **Spacing:** Rows 24 to 30 inches apart with seeds planted 2 to 3 inches apart within each row. Pearl millet tillers profusely and makes up for the gaps in the rows without loss of yield. **CRITICAL**
- **Seed Size:** 40,000 to 45,000 seeds/kg
- **Seed Rate:** 2 to 5 lb/acre **CRITICAL**

- **Planting Depth:** 0.5 inches. Firm the soil with a press wheel. Soil crusting causes loss of standability. **CRITICAL**
- **Planting Equipment:** Use precision planters / plates capable of planting 2 to 5 pounds of seed/acre that are 1 to 2 inches apart, such as air or vacuum planters
- **Establishment** The crop normally emerges 4 to 8 days after planting. When the seedling is about 6" tall and has 4 to 5 tillers it is considered established.

FERTILITY:

- **Preparation:** A soil test is always recommended to establish a baseline of fertility requirements
- **Fertilizer Application:** Apply 70% of silage corn fertilizer based on soil test, with 120 lbs Nitrogen, 30 lbs Phosphorus, and 75 lbs Potassium per acre at planting. Consider side-dressing 50 lb/ac Nitrogen 3 to 4 weeks after planting **CRITICAL**
- **Soil pH:** Optimal range 4.5 to 7.5 **CRITICAL**

PEST AND WEED:

- **Weed Pressure:** Pearl millet forms a dense canopy that shades out most weeds. However, early season growth is slow, and it is important to have low weed pressure during this critical period

PEST AND WEED (cont'd):

- **Weed Management and Controls:** Since there are no registered herbicides for weed control in grain millet, if grass weed pressure is heavy, use Roundup® *before* planting. Bed cultivation is the best option for controlling most weeds. Seeding into a stale seedbed is another viable option. Prepare the soil 2 to 3 weeks ahead of planting, allowing weeds to emerge and broadcast a burn-down herbicide Glyphosate. Plant pearl millet by no-tilling into the stale seed bed
- **Bird Damage:** Birds consume pearl millet grain and can cause severe yield losses in small fields or when harvest is delayed for an extended period after maturity. Grain is borne on open panicles unlike corn where the kernels are covered by husk hence timely harvest is critical to minimize bird damage

HARVEST:

- **Grain Maturity:** Ready for harvesting at 100 to 105 days, with high moisture grain harvested at 95 to 110 days. Harvest as early as possible after maturity
- **Moisture:** Optimal plant moisture for harvest is 60 to 72%, ensuring high-quality silage production
- **Combining:** Harvesting can begin when grain moisture is 18% or less using a grain combine with proper adjustments. Pearl millet grains do not separate easily from the glumes on the seed-head, so careful adjustments in the combine cylinder speed (900 to 1000 rpm) and concave spacing are necessary for efficient harvest.
- **Drying:** Use low wind speed fans to avoid carrying away of small seed with heavier chaff. Dry grain using wagons with fine-mesh floor screens and blowing warm air (38oC) air through the grain. Drying below 11 to 12% moisture is required for storage

[†]Ratings are based on testing over a number of years in numerous locations. Adverse environmental conditions and planting dates may alter a hybrid's performance, maturity and resistance to certain diseases and insects.

GrainMonster 90M

5-YEAR PERFORMANCE AVERAGES ACROSS CANADA

VIGOR

Early Vigor

1

PLANT HEIGHT

Height (cm)

107.94

GRAIN YIELD (13% MOISTURE)

Total GY mt/ha Season

3.36

NUTRITIONAL CONTENT (% OF DMY)

Crude Protein

13.81

Carbohydrate

75.49

Fat

3.48

Starch

68.027

Ash

1.504