

New Grains Northwest Planting Guide: Proso Millet

WSU Sustainable Seed Systems Lab - On-farm Trials 2022

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About this Guide

This guide is intended to be a quick, easy-to-reference summary of the extension documents we have been referring to as we get to know this crop. Please *do not* take any of these suggestions as required management strategies for the trials. We are thrilled to be working with such an experienced group of growers and will defer to your judgement when it comes to best practice for growing grains on your unique plot of land. Since there is not currently a resource available about growing proso millet in the inland Pacific Northwest, we are referring to these sources from Nebraska and Colorado knowing that they will need to be adjusted for our region. We hope that these trials will give us the experience we need to create a comparable reference document for our region in the future!

Please follow the links to the references below, or reach out to our team, to dig deeper into any of the recommendations you find in this guide.

References

* Proso Millet in the Great Plains – University of Nebraska Extension -
<https://extensionpublications.unl.edu/assets/pdf/ec137.pdf>

** Crop Profile for Proso Millet In Colorado – CSU Extension
<https://ipmdata.ipmcenters.org/documents/cropprofiles/COprosomillet.pdf>

*** Conversation with local growers

Preparation

- Want a firm, moist seedbed*
 - No-till drill into wheat stubble or conventional drill*
- If you choose to perform a soil test, the following measurements are recommended*
 - Soil sample from the surface (0- to 8-inch depth) should be analyzed for organic matter, pH, phosphorus, potassium and nitrate (N) and subsoil samples (to a 36- or 48-inch depth) also should be taken for nitrogen*

Pre-emergence Herbicides

- Can use 1-2 glyphosate applications before planting to control weeds*
 - Recommended rate: 3.5-7.0 fl oz ai/acre (8-16 fl oz product/acre)**

Fertilizers

- Most proso requires additional nitrogen*
 - Higher requirement after wheat than after summer fallow*
 - Do not to put more than 20 lb N down with the seed*
 - Higher rates of nitrogen can be safely applied when places at least 2 inches away*
 - See table on page 5 of [Proso Millet in the Great Plains – University of Nebraska Extension](#) for nitrogen recommendations for proso millet with a 3-foot soil sampling depth
- Phosphorus, potassium, and zinc recommendations page 6 of [Proso Millet in the Great Plains – University of Nebraska Extension](#)
- Never place ammonium thiosulfate (12-0-0-26) in the seed furrow*

Planting

- Optimum soil temperature for planting ranges from 55° F to 65° F. **, **
 - Soil will heat up sooner in tilled bed than in no-till bed*
- Aim to plant after last freeze, before last rain*
 - Want light rain after planting to encourage germination, but heavy rains soon after planting can bury seed and cause soil crusting, resulting in a poor stand**
 - Use of a rotary hoe can help to break crust***
 - May require replanting*
 - “Rainfall in the first three weeks after planting is undesirable [because of weeds].”**
- Seeding rate:
 - Most soils: 15-18 lbs/acre*, ***
 - 12 in rainfall zone: 10-15 lbs/acre***
 - Irrigated: 20-25 lbs/acre***
 - “A wide variety of seeding rate can be used without significantly influencing yield. Generally, use higher rates to avoid the necessity of reseeding after a heavy rainstorm. Recommended rates can be as low as 8 lb per acre, but rates of 15 to 20 lb per acre are more common. A rate of 12 lb per acre would be adequate with a good drill that minimizes the chance of crusting. Proso will thin itself if planted too thick. A thin stand will tiller profusely and compensate if the stand is uniform.”*
- Plant ½-¾ inch deep*
- Drills
 - Most common: deep furrow or hoe-opener – less desirable because its difficult to maintain shallow depth*
 - Most desirable: double-disk drill*
 - No-till drill works very well, avoids crusting*
 - Common row spacing is 7, 10 or 12 inches**
- If the small seedling leaves (2-3 stage) get covered with dirt it is best to reseed***
- Want stand to be 85 to 95 percent of seeded rate***

Herbicide Options (post-emergence)

- 2,4-D (2,4 D Amine Weed Killer)
 - Not all 2,4-D products are labeled for use with proso*
 - Use in 3- to 5- leaf stage*
 - Target Pests: Lambsquarters, Sunflower, Puncturevine, Pigweed, Knotweed, Russian Thistle**
 - Recommended rate: 3.7-7.5 fl oz ai/A (0.5-1.0 pt product/acre)**
 - Can be combined with Clarity application at same stage – 4 oz per acre to 0.75 pint/acre (Could increase risk of crop injury)*
 - Target Pests: Lambsquarters, Sunflower, Puncturevine, Pigweed, Knotweed, Russian Thistle**
 - Avoid dry, hot periods for application*
 - Avoid if poor secondary root development (plant appears attached to soil only by a thread of root)*
- Dicamba (Clarifier)
 - Target Pests: Kochia, Wild buckwheat**
 - Recommended rate: 2.3 fl oz ai/A (4 fl oz product/acre)**
 - Avoid if poor secondary root development (plant appears attached to soil only by a thread of root)*
- Prosulfuron (Peak)
 - Target Pests: Buffalobur, Lambsquarters, Knotweed, Russian Thistle, Kochia, Pigweed** (later emerging broadleaves)*
 - Recommended rate: 0.22-0.28 oz ai/A (0.38-0.5 oz product/acre)**
 - With .38 to .5 oz/acre 2,4-D ammine (4L) per acre; add a non-ionic surfactant at a rate of 1 quart/100 gallons of spray solution*
 - Comments: Kochia and Redroot Pigweed both contain resistant biotypes*
 - Sunflowers and garbanzos cannot be planted for 22 months following Peak application*
- Aim
 - Target pests: Buffalobur (noxious weed in WA), kochia, Russian thistle
 - Recommended rate: 0.5 oz/acre tank mixed with 2,4-D and/or Clarity

Harvest

- Proso millet is harvested when the seed in the upper half of the panicle are mature**
 - Mature seed will be starchy in the center
- Normal test weight is 50 pounds per bushel. Seed moisture content of 13% or less is optimal (12% for sale to Global Harvest)**
- Preferred: Swath and let dry in windrows, (early September)*
 - Swathing too soon reduces yield and test weight. Swathing too late results in losses due to lodging and shattering.**
- Direct combining (may be better suited for certain varieties)
 - Risks to direct combining: seed can shatter soon after ripe, potential lodging, straw moisture content too high at harvest time**

- Chemical desiccation
 - May not be preferable for specialty food markets but isn't a concern in the birdseed market***
 - Desiccate end of august/ 1st of sept. Harvest middle/late part of September***
- Aerating (after harvest)
 - You can aerate millet to dry it - it is slow and you do not want to do large batches. Use high volumes of air, with fine hole drying floors***

For Sale to Global Harvest Bird Seed (*see next page for details*)

- 1) 12% Max Moisture
- 2) 50#/Bushel test weight Min. (We can work with some growers if they cannot meet this)
- 3) We can take in bin run millet at our Mead facility however it should be brought in as clean as possible.
- 4) Seed with mold / bad odor or infestation will be rejected.
- 5) Approximate price: \$18.00/CWT

REVIEWED

By BUD HANSEN at 9:44 am, Feb 24, 2021



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PRODUCT: White Proso Millet (Bin Run)

Product Description:

These are bin run millet grains.

General Requirements:

Product shall conform in every aspect to the provisions of the United States Food Drug Cosmetic Act and general regulations for its enforcement, including the food additives amended to this act and is not adulterated or misbranded within the meanings of the pure food laws or ordinances then in effect for the state, county, or city to which the article is shipped or delivered.

Ingredients:

White Proso Millet

Analytical Specifications:

Physical

MOISTURE: 12% max

TEST WEIGHT: min 50 lbs/bu

TYPE: Bin Run

PURITY: 94%

-Max 6% foreign material

VARIETY: White Proso

GENERAL: No mold, objectionable odor or live infestation present at time of delivery. Not for human consumption.

Nutritional Analysis:

Crude Protein 11.1%

Crude Fat 3.6%

Crude Fiber 5.6%

Storage: Cool dry storage (Refrigerate for best freshness and shelf life)

Shelf Life: Two years under ideal storage conditions.

Packaging: Bulk



Global Harvest Foods, Ltd.

16000 Christensen Rd. Suite 300
Seattle, WA 98188
1.800.669.6110



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Experience

PRODUCT: White Proso Millet (98% Recleaned)

Product Description:

These are recleaned millet grains.

General Requirements:

Product shall conform in every aspect to the provisions of the United States Food Drug Cosmetic Act and general regulations for its enforcement, including the food additives amended to this act and is not adulterated or misbranded within the meanings of the pure food laws or ordinances then in effect for the state, county, or city to which the article is shipped or delivered.

Ingredients:

White Proso Milelt

Analytical Specifications:

Physical

MOISTURE: 12% max

TEST WEIGHT: min 50 lbs/bu

TYPE: Recleaned

PURITY: 98%

-Max 2% foreign material

VARIETY: White Proso Millet

GENERAL: No mold, objectionable odor or live infestation present at time of delivery. Not for human consumption.

Nutritional Analysis:

Crude Protein 11.1%

Crude Fat 3.6%

Crude Fiber 5.6%

Storage: Cool dry storage (Refrigerate for best freshness and shelf life)

Shelf Life: Two years under ideal storage conditions.

Packaging: Bulk



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