BEST MANAGEMENT PRACTICES FOR GROWING PERENNIAL RYEGRASS SEED

Perennial ryegrass (PRG) seed production can be a very profitable crop to grow in Western Canada. As with all crops, management is critical to achieving high yields and quality. The following management practices are essential to have success with this crop.

Plan Ahead

1) Field Selection

- Choose a field that historically has a low incidence of perennial grass weeds (quackgrass, foxtail barley, etc.) as well as wild oats & annual bluegrass.
- Avoid fields with residual herbicides that could impact establishment.
- PRG performs best with ample moisture and can be used to help manage excess moisture fields. Avoid lighter soils/dryer fields in favor of heavier/ poorly drained soils. PRG also performs well under irrigation.

2) Field Preparation

- Pre/post-harvest glyphosate in the year prior to planting PRG are helpful in reducing quackgrass and other perennial grasses.
- If conditions allow, apply glyphosate prior to seeding PRG.
    - Tank mix options: Prepass XC, Express SG, or GoldWing

Establishment

1) Companion Crop

- PRG can be seeded under a variety of crops, but is commonly seeded with spring wheat, oats or LL canola.

2) Seeding Rate

- Seed PRG at 7-10 lbs/acre at ½ inch depth.

3) Seeding Methods

- Separate pass (air drill) – seed PRG immediately after cereal on an angle *Preferred method as it ensures both crops are seeded at correct depths and minimizes inter-row competition.
- One pass (air drill) – seed PRG & companion crop in same row *preferred method when seeding LL canola.
- Separate pass (Valmar) – seed PRG after/before companion crop, follow up with incorporation via har-row-packer. This method may require a higher seeding rate.
- Fall planting – without companion crop, the earlier the better; align timeline with provincial crop insurance dates (MB mid-late August; AB early September).

Companion Crop Management

1) Planning

- Companion crops should be managed to minimize lodging as it can smother PRG seedlings and limit the stubble needed to protect seedlings over winter.
- Early harvest of cover crops improves overwinter survival.

2) Crop/Variety Selection

- Choose a variety with a strong standability and choose an appropriate seeding rate to minimize lodging.

3) Fertility

- Apply extra phosphate up to seed-safe levels with the cover crop to have available for PRG in the following year.
- Manage cover crop nitrogen fertility to minimize the risk of lodging.

4) Pesticides

- Consult with your Seed Production Specialist on herbicide options.
- Do not use PRE-HARVEST GLYPHOSATE.
- Apply fungicides and insecticides as normal.

5) Growth Regulator

- Consider using a growth regulator on your companion crop when applicable to minimize lodging.

6) Harvest

- Swath/combine or straight cut as normal.
- Leave 8-10” stubble to protect seedlings over winter.

7) Residue

- Cover crop residue management is critical to avoid smothering PRG seedlings.
- Chop and spread evenly.
- If baling straw, ensure it is completed in a timely manner.
- A light harrow may be required to break excessive trash and germinate volunteers.

Fertility

1) Target Yield

- Set a target yield & fertilize crop to reach yield target. A soil test helps to establish starting rates.
  - Yield target: 1000 lbs/ac Fertility 140-30-20-10

2) Rates

- Target 130-150 lbs actual nitrogen to achieve maximum yield. PRG yields have a linear relationship with increasing nitrogen rates but need to manage crop lodging.

3) Timing – 3 most popular options for fertilizing PRG with nitrogen:

- 1. **Split** – 30-50% applied fall, 50-70% applied in spring *preferred method as it insures nitrogen is available in early spring when plants break dormancy while minimizing potential nitrogen losses over winter and providing more timing flexibility for spring applications.
- 2. **Fall** – 100% applied late fall.
- 3. **Spring** – 100% applied very early spring as PRG utilizes nutrients early in the season.

4) Application

- When possible, apply nitrogen before a rain to improve soil infiltration and minimize losses.
- Use a nitrogen stabilizer to minimize losses.

Crop Protection

1) Herbicides

- Consult Seed Production Specialist for list of acceptable products/refer to provincial crop protection guide.
- Good options for broadleaf weed control, but few grass options.
- With limited options for grass weed control, spot spraying and mowing can be used to manage problem areas.
- Establishment year: Fall herbicide application can be applied to control broadleaf weeds.
- Harvest years: Apply in spring when weeds are actively growing but prior to heading out of PRG.

2) Growth Regulator

- Application of a growth regulator to PRG helps to reduce lodging, speed up harvest, and increase yield.
- Timing – apply in spring when 2nd node is visible on tillers, need to watch application timing especially in dry years.
- Product - Trinexapac-ethyl (Moddus) at rates between 0.69 – 1.38 L/acre.

3) Fungicide

- Fungicides are effective in reducing disease pressure and increasing yields. A fungicide application is recommended in average to above average yield environments to protect against leaf and stem rust.
- Timing – apply after crop has headed out, prior to/onset of flowering.
- Rate – label rate for rust control.

4) Insecticide

- Not normally necessary in PRG. If insect pressure is above threshold, apply insecticide at label rate. Pests to watch for:
  - Cereal armyworm: can arrive in early July and start feeding.
  - Cutworms: watch for bare patches in the spring.
  - Grasshoppers: keep watch all season for populations moving in.

Harvest

1) Swathing

- PRG must be swathed to avoid seed shatter.
- Crop timing – 35 to 45% moisture (Mid July); Your Seed Production Specialist will help determine swath timing.
- Time of day – preferable to avoid the heat of the day. Non lodged crops can be cut at night.

2) Combining

- Combining can commence as soon as 4 days after swathing, dependent on weather, swath size, and crop biomass.
- Seed Moisture – begin combining when seed moisture is below 14%.
- Combine Settings – PRG threshes easily but can be a challenge to separate out. Combine capacity is typically limited by cleaning. Consider using a drop pan to measure harvest losses and change one setting at a time. Some general settings:
    - Concaves opened ½".
    - Lower fan speed.
    - Tighter sieve (top close to wheat, bottom like flax).
- Residue – Spread chaff evenly.

3) Storage

- Use aeration to dry and cool seed after harvest.
- Do not use heat, as it can reduce seed germination.
- Seed must be 12% moisture or less for safe long-term storage.
- Bin Space – 1,000 lb/acre PRG crop is equivalent to 50 bu/acre.
- Turn seed in bin is a good practice when seed moisture is higher.

Post Harvest Crop Removal and Re-Cropping

1) Crop Removal:

- Apply a minimum 1.5L/acre of glyphosate post-harvest once PRG regrowth has started.
- Burn – Field can be burned in fall or spring to remove remaining crop residue. Follow provincial guidelines for crop burning.
- Tillage – to be completed in fall. 2 or 3 passes may be required.
- No Till – seed directly into burnt stubble with no-till drill or planter.

2) Re-cropping

- It is recommended to stay out of cereals for the first year. The best cropping options following PRG are crops where grass herbicides can be applied:
    - Soybeans
    - Canola
    - Peas