GREENAMAX (GMX)

Treatment Overview and Recommendations

Field Trial Methodologies

General Recommendations

- Control or lower dilution treatments (plots, fields, or rows) should be upwind from higher concentration treatments to avoid any drift during foliar spray. Small quantities of the product can trigger a response and cause accidental bias in the trials.
- It is important to have a larger buffer between the Control and the various treatment plots/fields than is typically employed for most crop trials. This separation prevents air drift during foliar spray and is also critical to control communication through the plant roots and via the soil. A minimum buffer of 3 meters for the small trial plots is recommended. A buffer of 10 meters or separate testing areas is preferred. For large fields, windbreaks or roads can serve as buffers.
- For the trials only, do the foliar applications separate from other chemical applications or treatments to reduce any confounding influences during testing, since other applications may vary from field to field, and farm to farm.
- Record the following information:
    - Applications of inputs, treatments, and other cultivations
    - Seed varieties used in the trials
    - Other pre-treatments or coatings (chemicals) used by the seed companies. Note: Pre-treated seeds must be sprayed, not dipped.
- GMX should not be exposed to any kind of metal during storage or during the mixing process. A metal spray tank is acceptable once the product is thoroughly mixed and in solution.
- GMX should be kept out of direct sunlight, at room temperature or below. Treatments should be done out of direct sun if possible.
- All GMX treatments should be applied at recommended times for best results.

Seed Treatment

General Notes

- Make enough working solution to completely immerse the seeds. Amount of working solution will vary with the crop and seed application rate.
- Seed treatment should be done in a shaded area, away from direct sunlight.
- Seeds should be air dried prior to planting.

Preparation and Application

Untreated Seeds

- Dilute 1, 2, or 4 pellets per liter of tap or rainwater, depending on the treatment rate, in a non-metal container to prepare a working solution.
- Drop pellets in water and then shake or stir the solution until the pellets are completely dissolved.
- Soak or dip seeds in a plastic or glass container with the working solution.
- For small quantities of seeds, the working solution can be poured over the seeds in a small plastic or glass container and then drained off.
- Let the seeds stand in solution for approximately 30 minutes for good absorption.
- Remove the seeds from the solution and air dry.
- Once the working solution has been used for soaking a batch of seeds, it should be discarded, and new working solution should be prepared for each new batch of seeds.
- Wait at least 2 hours after treatment before planting the seeds.
- Seeds should be planted within 2 days and can be held if dried properly.

Treated Seeds

- Dilute 1, 2, or 4 pellets per liter of water, depending on the treatment rate, in a non-metal container to prepare the working solution
- Dilute pellets in water and then shake or stir the solution until the pellets are completely dissolved.
- Lay the seeds out on tarps or other protected flat surface (NOT directly on the ground) and spray the seeds until they are coated with the solution but there is no pooling of water or puddles on the tarp.
- For small quantities of seeds a handheld spray bottle can be used and the seeds sprayed in a small container.
- Let the seeds air dry and wait at least 2 hours before planting.
- Seeds can be held and planted within 2 days of treatment if needed.
- Seed treatment should be done in a shaded area, away from direct sunlight.

Large quantities of Seeds

- A mixer or seed coating machinery can be used to treat large field quantities of seed. The exact application amount will be calculated based on the capacity of the equipment, type and quantity of seed being treated.

Foliar Application

General Notes

- Apply foliar spray ONLY on a calm day – this is generally advisable anyway to avoid drift and loss of the product. Plants have better uptake with foliar sprays in calm conditions – less stress and more uptake.
- Spray in the morning or evening hours to avoid hot sun/extreme heat at the time of application.
- Do NOT apply foliar spray if rain is expected within next 6 hours.
- Spraying can be done using spray bottle, backpack spray, boom sprayer attachment to tractor, or other equipment depending on the size and scale of the trial.
- Note: for rice, a surfactant (sticking agent) can be used along with the GMX solution if there are problems getting the spray to stay on the plant and/or wet the foliage

Application Rate and Method

Foliar Application #1

- The first foliar application should be done when the plants have 3-4 full leaves. In most crops, this stage will be achieved at approximately 5-10 days after transplanting or 15-20 days after sowing (for crops sown directly in the field). Time to reach the right stage may vary based on crop and local conditions.
- Dilute 1 or 2 pellets per liter of water, depending on the treatment, to prepare the working solution.
- Dilute pellets in water and then agitate the solution until the pellets are completely dissolved.
- Spray appropriate amount of water to make sure all leaves are completely wet. Amount of water will vary with crop, equipment used, and local practices.

Foliar Application #2

- The second foliar application should be done soon before flowering stage. This stage will be achieved at approximately 30-35 days after transplanting or 40-45 days after sowing (when crop is sown directly in the field).
- Dilute 1 or 2 pellets per liter of water, depending on the treatment, to prepare the working solution.
- Dilute pellets in water and then agitate the solution until the pellets are completely dissolved.

- Spray appropriate amount of water to make sure all leaves are completely wet. Amount of water will vary with crop, equipment used, and local practices.

Field Trial Design and Treatment Details

General Considerations

- If crop trials will be in separate fields, then each field should be divided into the number of sections corresponding to the number of treatments for that crop and run the entire length of the field, to take in the variations of conditions throughout the field. If the field is relatively uniform, then block of treatment plantings can also be used. Buffers, as described above, between treatments should be established and maintained throughout the trials.
- The treatment sections should be perpendicular to the predominant wind direction (if possible and appropriate for the contour of the field). The trial can be laid out as rows or in blocks. If rows, there should be a minimum of 8 rows of each treatment. If using a tractor and planter/implements for the trials the width of the trial rows should be a multiple of the planter width but at least 8 rows.
- If all the crops are in one field, then all the Control blocks or rows should be upwind of all the other Treatments rows or blocks.
- Sampling for data collection and analysis within the rows and/or blocks can be done using either random or representative method – but the same method should be used throughout the entire trial for the crop being tested. The actual layout of the fields is at the discretion of the researcher and subject to local conditions, as long as the parameters for avoiding drift and buffers are maintained. The methods and data collection, recording, and reporting should be followed regardless of the size, configuration, or design of the trials.

Recommended Treatments

Control – farming as usual. The seeds, planting, cultivation will be conducted as in any other year.

T1 – Seed treatment with GMX at 1p/L, and 2 foliar sprays at 1p/L during the growing season

T2 – Seed treatment with GMX at 2p/L, and 2 foliar sprays at 2p/L during the growing season

T3 – Seed treatment with GMX at 4p/L, and 2 foliar sprays at 1p/L during the growing season

T4 – Seed treatment with GMX at 4p/L, and 2 foliar sprays at 2p/L during the growing season

Note: the foliar sprays will be at no more than 2p/L dilution for any application.

Other trials, such as varying fertilizer amounts, will be T6, T7, . . . Tn, depending on the complexity of the additional trials.