Independent Inputs

Seed Treatment Application
Best Management Practices

Chemical Preparation:

- Do not allow chemicals to freeze. Storage temps should be 40^{o} F or above.
- Shake all chemical jugs thoroughly before using.
- Chemical jugs must be triple rinsed prior to proper disposal. Use the rinse water as part of the slurry mix. Allow for the amount of water used when making the slurries.
- Re-circulate all drums a minimum of 10 minutes, particularly PPST 2030.

Inoculant Preparation/Usage/Handling:

- Do not allow inoculant to freeze or expose to excessive heat, above 75 degrees. Keep out of direct sunlight.
- Do not use chlorinated water.
- Inoculants do not require agitation, but should be re-circulated prior to application. Avoid adding more inoculant to the tank than will be used in the treating day.
- If inoculant is added to FST or FST/IST slurry – apply to the seed within 4 hours.
- At the end of the treating day, pump any remaining inoculant back into the bladder and store overnight in a refrigerator. If the remaining inoculant will not be used the next day, properly dispose of it. If the remaining inoculant is starting to get thick, stringy or lumpy, even if it would be used the next day, do not use and dispose of properly.
- Rinse inoculant tank with clean water after draining, run water through the system to clean the element, filter, and hoses. Drain and dispose of the water.
- If contamination has occurred, use a disinfecting solution, spray the inside of the tank, and brush if necessary to remove any growth. Again, run the mixture through the system to clean the element, filter, and hoses. Drain the mixture from the system and flush thoroughly with clean water. Do not leave disinfection mixture in the system, it will kill the inoculant.
- Clean the filter on the inoculant tank at the start of each day.

- As the air temperature goes up, the chances for inoculant to get thicker and for undesirable growth to occur in the mix tank goes up.
- If you notice any white or black chunks in the inoculant bladder, do not use, set aside, and contact your II representative.
- Keeping the inoculant tank and filter clean is a key in minimizing problems with PPST 120+.

Mix Tank/Pump/Elements:

- Continuous agitation is recommended whenever chemical slurry is in the premix tank.
- If Gaucho is in a separate premix tank with no water added, constant agitation is not required. Product should be recirculated thoroughly at the start of the day.
- Allow ample time for mixing of all components with either the 640 or 2400 unit systems before starting to treat. A minimum of 30 minutes is recommended for 2400 unit batches in either the primary mix tank or transfer tanks. 15 minutes is recommended for 640 systems.
- Calibration tubes on Bayer premix tanks are strongly recommended for easier, neater, and more accurate calibrations.
- Flow meters are strongly recommended on each slurry tank to help insure accurate chemical application.
- Flow meters should be cleaned prior to the start of the treating season. Remove the hoses from each end and use the brush provided. Install the hoses and run water thru the system to check for leaks and to make sure the flow meter is registering as it should.
- If the flow meter is not registering a flow total, but is showing a rate, disconnect the orange connection cord at the control box and then reconnect; this should reestablish the flow total.
- Cut hoses running to the treater as short as possible to eliminate dips or sags in the lines. Excessive hose will allow the chemicals to settle and potentially plug the lines.
- The premix tank filters should be checked and cleaned periodically.
- "Cold" slurry will not flow at the same rate as when it is warmer. **Chemical calibrations should be checked daily**, and as air temps warm during the day. Flow meters make this easy to check and change if needed.

- When replacing the element in LS and IP pumps, run the pump for 5-10 minutes to break in the new element. Check chemical calibration after replacing.
- Chemical lines should be drained at the end of each treating day.
- Prime liquid flow to the atomizer at the start of each day or if it is more than 10-15 minutes between treating runs.
- At the end of the treating day, loosen the head on LS and IP pumps to relieve the pressure on the element.
- At the end of the season, pumps and lines should be drained, cleaned and filled with (RV) anti-freeze.

Treater Recommendations:

- Drums and atomizer should be cleaned prior to the treating season. All premix tanks should be cleaned. Chemical lines, valves, and fittings should be checked for leaks prior to the start of the treating season. Follow the maintenance recommendations of your treater manufacturer. Mixing Simple Green and water in the premix tank and allowing it to recirculate for 24 hours is an excellent way to help clean tanks and chemical lines. Properly dispose of the "green" water.
- When using the seed container to weigh seed for treaters with seed wheels, use the same method each time. DO NOT "pack" the seed in the container. It is recommended when filling bulk bins to take 2-3 weights from each load and average. Record the weights for each lot. Remember to zero the scale before weighing.
- Large seed vs. small seed will flow differently. With volumetric treaters (CS 1700 or LP series treaters with no seed wheel), seed flow calibrations should be checked and chemical calibration readjusted. Recommend checking when seed lots or seeds/lb. change.
- "Dirty" or "dusty" beans can cause problems in the atomizing chamber. Chemical will stick to the dust and build up on the atomizer and in the atomizer chamber. Excessive build up can affect seed coverage and may produce chunks that fall into the drum and get into planters. **Atomizers should be checked for build-up and cleaned every 2-3 days depending on treating volumes and dustiness of beans**.
- It is normal to see some chemical sticking at the discharge end of the drum, this means the beans are going into the tack phase. Misting a fine spray of

water on this build up will help keep the chemical moist and as you treat will help wear down the buildup off the drum.

- Running a box or two of soybeans thru the treater without treating is also a good way to clean build-up out of the drum. Moisten the inside of the drum with a fine mist of water to soften any buildup before running the beans through the treater. These soybeans must be planted or rerun through the treater to properly treat.

Soybean Seed Conditioning:

- Run fans on bulk seed as temps warm or move boxes to a warmer area in the warehouse the night before, if possible. Remove the lids on boxes to help warming. Follow bin/bulk seed handling recommendations from Pioneer.
- Temperature and humidity will affect the rate of seed drying regardless of the chemical used. All seed goes through a "tack" phase after treating. Liquid must evaporate for drying to occur. Generally less water in the slurry will reduce "sticky" issues when temps are colder and if beans are cold coming from bulk bins or a cold warehouse. Cold beans will "sweat" when warmed and this can cause the "tack" phase to move in the treater or to conveyors, tenders, or boxes. **Warming the seed prior to treating is strongly recommended.**
- Beans will continue to dry when placed into a tender or back into a box. Leave the lid off the box as long as possible to help facilitate drying.
- "Letting down ladders" at the end of the conveyors can help improve treatment coverage and drying.
- Do not use talc as a "drying agent". Once seed has dried, talc can be added. Follow all planter manufactures recommendations.