

S.L.A.M. Post-Harvest IPM

Department of Entomology

MAXIMIZE GRAIN QUALITY & PROFITS USING S.L.A.M.

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THE S.L.A.M. POST-HARVEST IPM STRATEGY

The S.L.A.M. post-harvest IPM strategy is a systems approach to maximize grain quality. Its success depends on the proper selection of crop varieties, production and harvest practices, grain handling equipment, drying systems, and storage management.

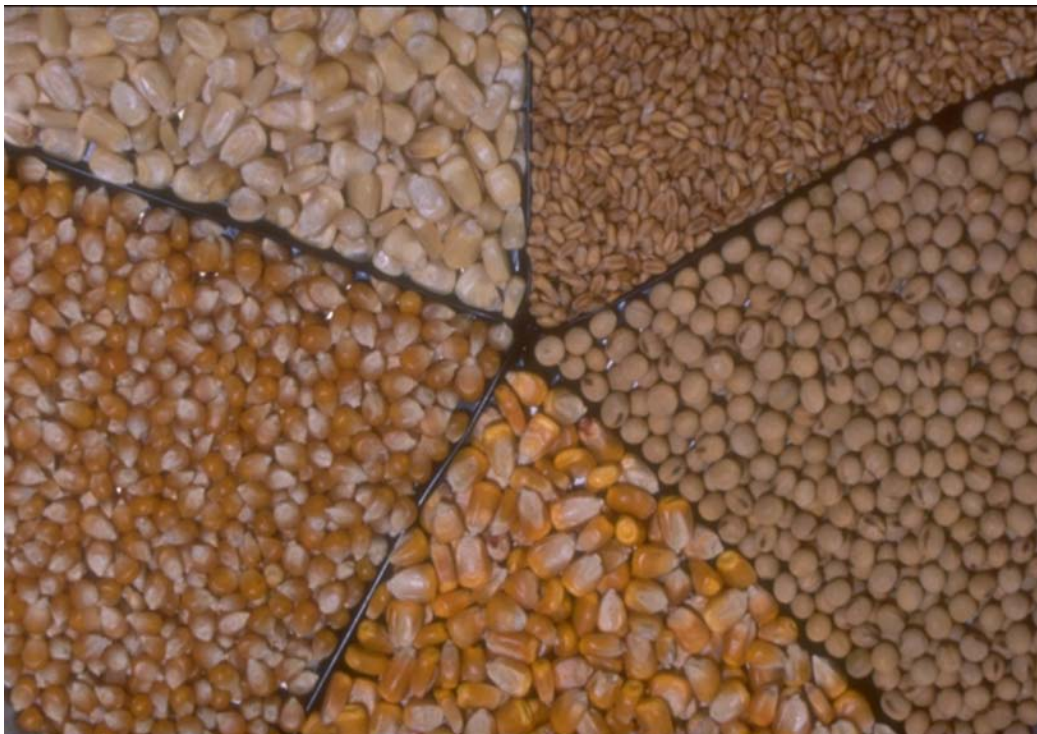
S.L.A.M. represents four simple steps – sanitation, loading, aeration, and monitoring. Grain storage never improves grain quality! Thus, it is the objective of S.L.A.M. to maintain maximum post-harvest quality by protecting stored grains and oilseeds from weather, rodents, insects, self-heating, molds, mycotoxins, and pesticide residues. In addition, minimizing the deterioration process prevents spoilage, quality discounts, storage costs, and thus maximizes the return on every bushel harvested, dried and stored.

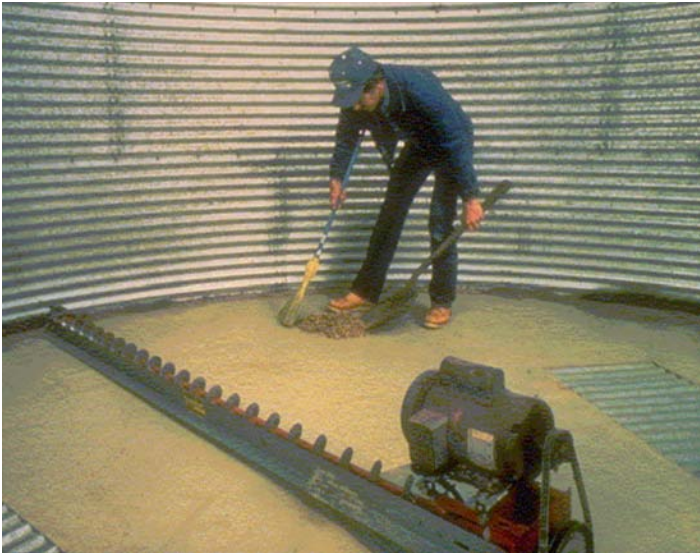
This publication describes the four S.L.A.M. principles by identifying the proactive steps and preventive benefits of this simple yet effective post-harvest IPM strategy.

Use S.L.A.M. to keep the lid on spoilage and quality discounts!

ADDITIONAL RESOURCES

For more information on the S.L.A.M. Post-Harvest IPM Strategy and additional resources see our Post Harvest Grain Quality & Stored Product Protection Program website <<http://extension.entm.purdue.edu/grainlab/>>.





SANITATION

Proactive Steps

- Remove vegetation and maintain a weed-free facility
- Clean handling equipment (combines, trucks, wagons, conveyors) after harvest
- Remove all grain spills
- Clean storage structures after emptying
- Disinfect storages inside and out before refilling
- Clean grain before binning using screens, scalpers, or perforated auger tubes
- Seal unloading auger, auger tube opening, and side door openings before harvest
- Establish a written sanitation schedule

Preventive Benefits

- The chance of mold and insect development is reduced
- The need for grain protectants is avoided
- Broken grain, foreign material, weed seeds, and fines are kept out of the bin
- Aeration effectiveness is improved
- Sealed openings prevent insect entry and cold air loss

LOADING

Proactive Steps

- Expand the use of combination and slow drying methods
- Minimize grain transfer operations by optimizing handling and storage systems
- Operate augers and elevators at capacity and slowest possible speeds
- Only store grain in aerated structures (bins, silos, tanks, flats)
- Use a spreader to fill the bin
- Core the fines from the center of the grain
- Level peaked grain soon after harvest
- Record grain moistures going into storage
- Screen for mycotoxins

Preventive Benefits

- Stress cracks and brittleness from overdrying of grain are reduced
- Airflow through clean grain is higher and more uniform
- Clean grain has a greater storability
- Lower quality grain is identified and can be scheduled for earlier unloading



AERATION

Proactive Steps

- Cool dried grain uniformly to 30 - 35°F by mid-December
- Move cooling front completely through and out of the grain mass
- Maintain low grain temperatures as long as possible during storage
- Avoid rewarming of dry grain with fans during the spring and summer
- Run your fans judiciously, or install automatic fan controllers to help you
- Install adequate exhaust vents and avoid condensation on inside walls and roof
- Seal fans when off to prevent early warm-up

Preventive Benefits

- Cold grain has a longer storage life
- Non-uniform moistures from high-temperature drying are equalized
- Savings in grain damage, moisture losses, residual pesticides, and fumigation expenses result
- Adequate exhausting from the headspace minimizes condensation and maximizes airflow

MONITORING

Proactive Steps

- Probe top grain layer with a thermometer to make sure cooling front has exited
- Install a temperature monitoring system
- Acquire and use grain sampling equipment (triers, probes, traps, sieves)
- Check stored grain regularly for temperature, moisture, insects and molds
- Check binned grain every 3 - 4 weeks during cold months
- Check binned grain every 1 - 2 weeks during warm months
- Repair leaky roofs, seals, joints and holes
- Never enter bin with flowing grain, or after partial unloading

Preventive Benefits

- Temperature changes and moisture migration (damp grain) are detected early
- Heat generated (hot spots) by insect and mold activity can be counteracted early
- Wetting due to rain or snow entering the storage is avoided
- Peace of mind
- Safety!

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