Equipment Manufacturers Response – International Standard Development

Pollinator Summit

March 2013

Overview

- Planter Technology Overview
- Manufacturers Multi-Pronged Approach
- Development of ISO Standard

Planting Technology

There are five basic types of seed planting equipment:

- Box drills
- Mechanical meter planters
- ☆ Air seeders
- ☆ Positive air pressure planters with/without CCS (central commodity systems)
- ★ Vacuum planters with/without CCS (central commodity systems)

☆ Three use air systems ★ One has a central exhaust

Box Drills

Box drills have a central seed box with associated volumetric mechanical meters (one per row).

This planter uses gravity to drop the seed into the seed trench.

Note: No air delivery system, and no exhaust.

Mechanical Meter Planters

Mechanical meter planters have individual row unit seed boxes with associated mechanical meters (volumetric or singulating).

This planter uses gravity to drop the seed into the seed trench.

Note: No air delivery system, and no exhaust.

Air Seeders

Air seeders have a central seed tank with associated centrally mounted volumetric meters (one per row or multi row with downstream splitter devices).

Pressurized air is used to convey the seed from the tank to the meter to the seed trench. Seed is blown into the seed trench.

Air exhausts downward, where seed is deposited in the seed trench.

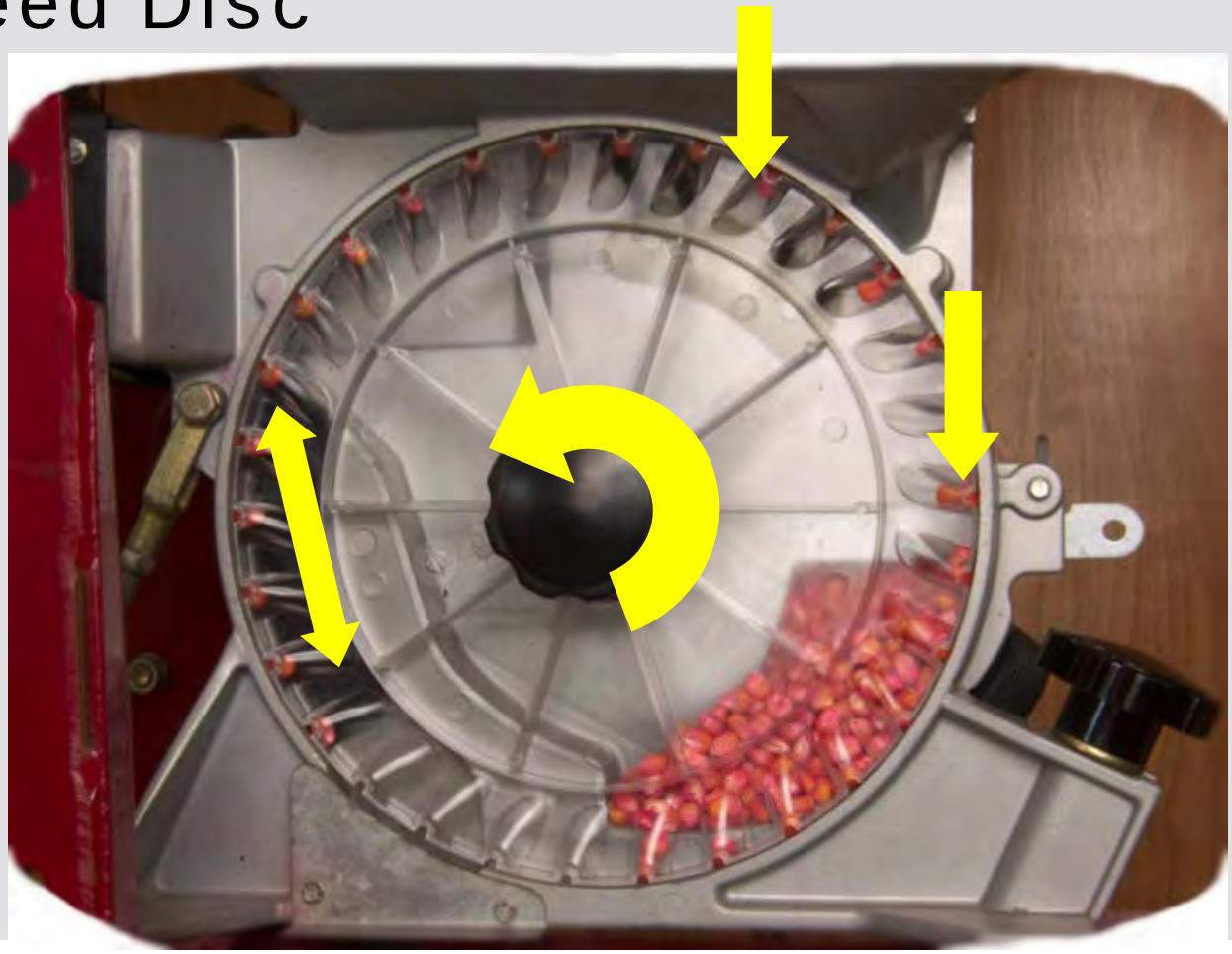
Positive Air Pressure Planters

These planters are similar to vacuum planters, except that instead of creating negative air pressure (sucking the seeds onto the disc), they create positive air pressure (to push the seeds onto the disc).

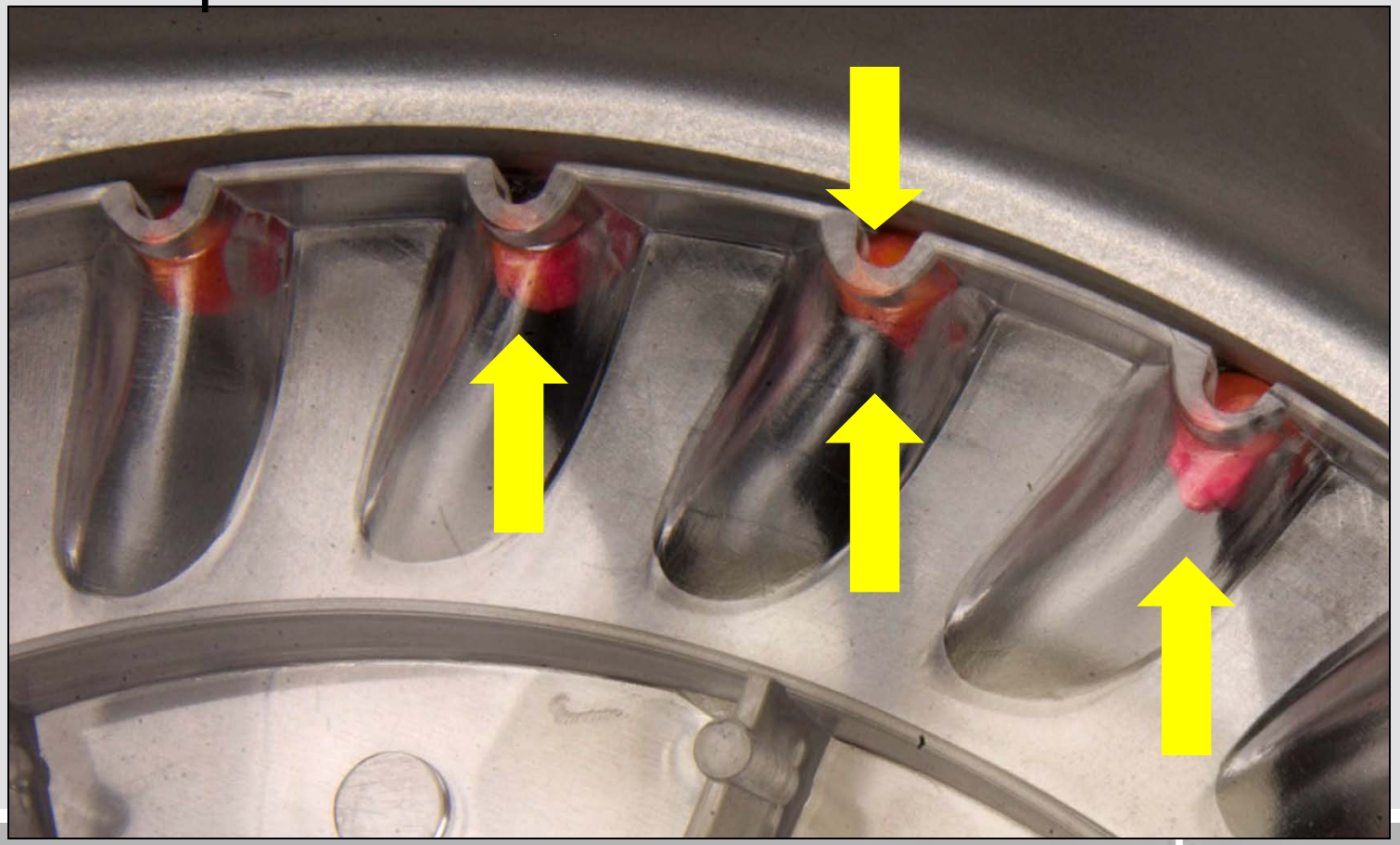
Both central (bulk fill) systems and individual row unit systems are available.

Edge-drop Seed Disc

(White Planter)

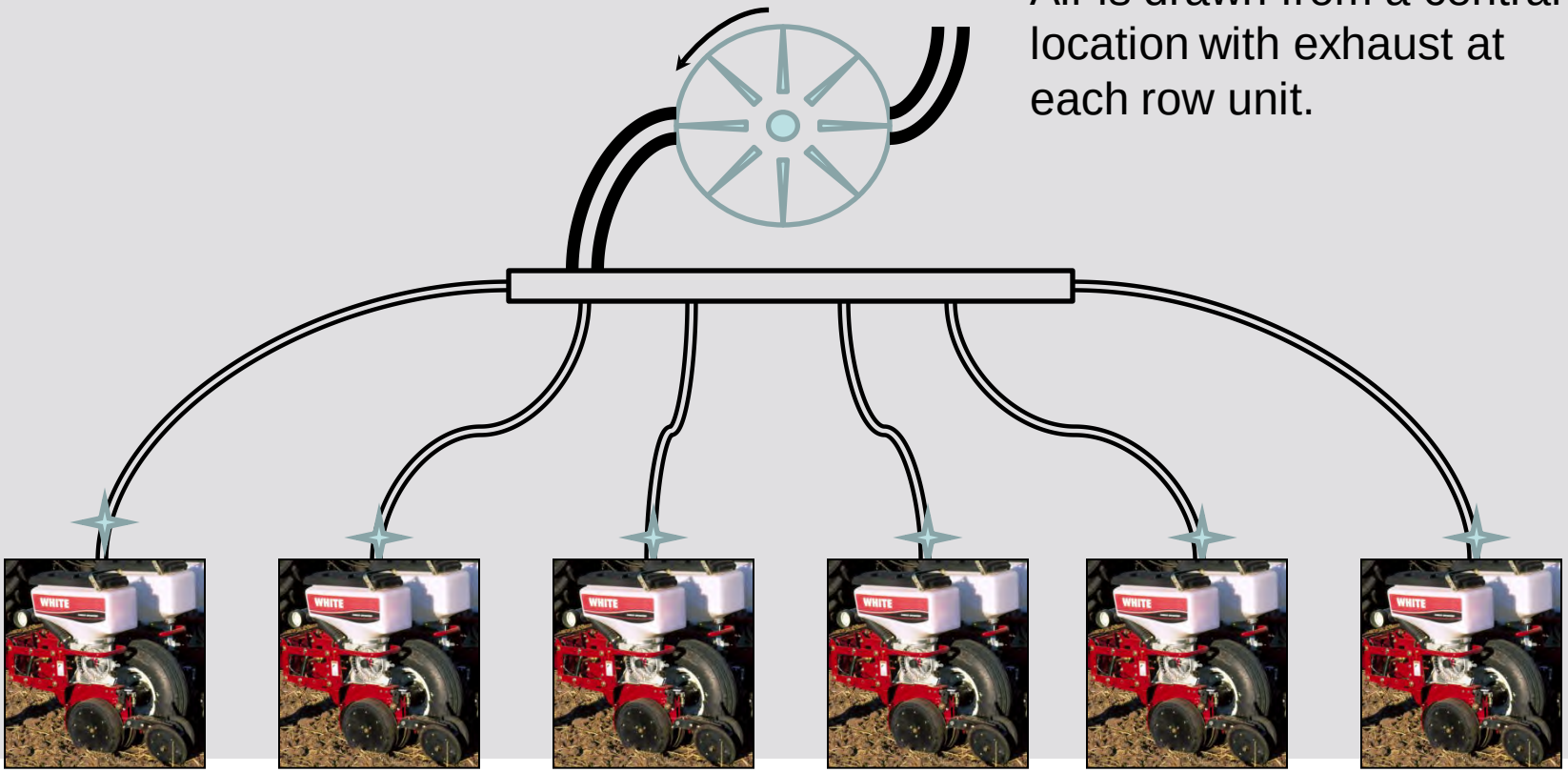


Edge-drop Seed Disc



Airflow in a Positive Air Pressure System

Air is drawn from a central location with exhaust at each row unit.



Vacuum Planters

Vacuum planters have individual row unit seed boxes.

Each row unit has an associated vacuum seed meter. The seed is drawn into the meter using a vacuum to hold the seed to the disk.

This planter uses gravity to drop the seed into the seed trench.

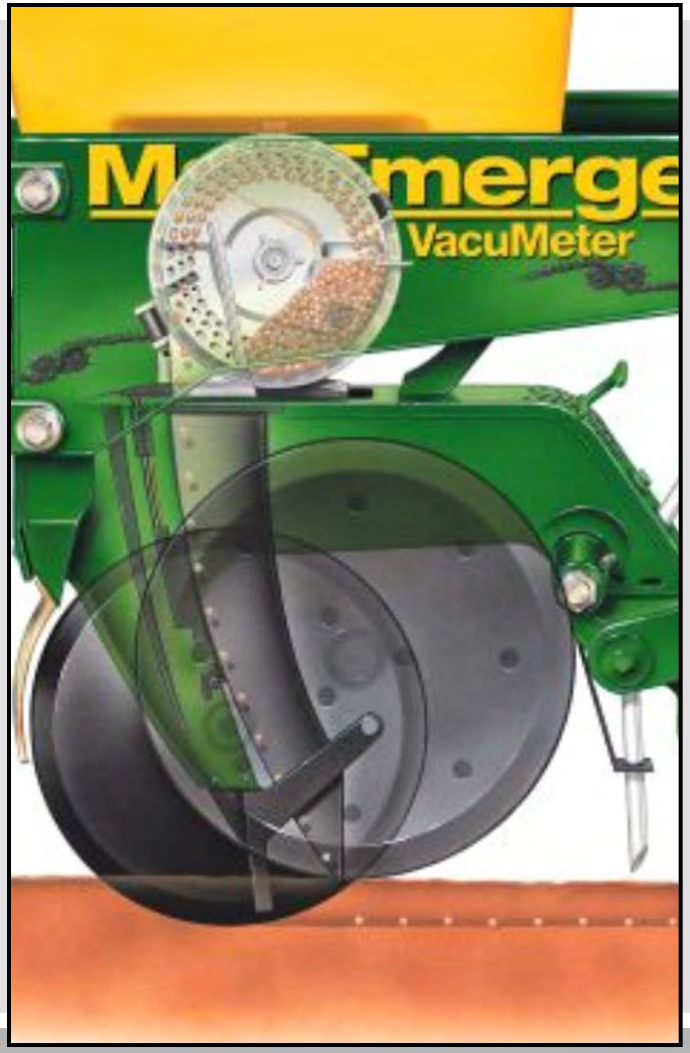
There is a central vacuum fan with a central exhaust.

Vacuum System Technology

Seed in the bottom of the meter

Vacuum pressure draws seed onto the disk

Vacuum Meter



Vacuum Planters with Central Bulk Fill Systems

These planters have a central seed tank with pressurized air to distribute seed to each row unit (exhaust at each row unit).

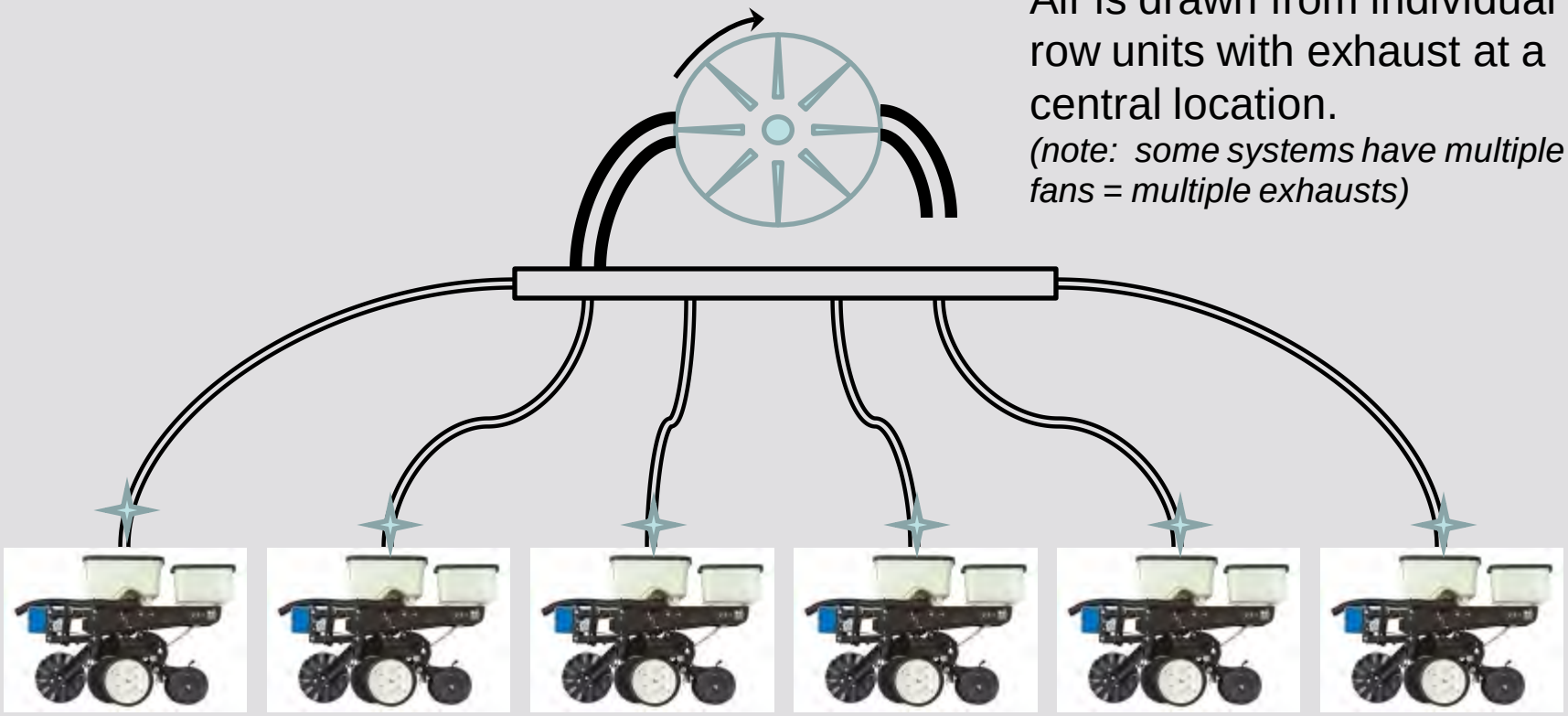
Each row unit has an associated vacuum seed meter. The seed is drawn into the meter using a vacuum to hold the seed to the disk. This planter uses gravity to drop the seed into the seed trench.

There is a central vacuum fan with a central exhaust.

Airflow in a Vacuum System

Air is drawn from individual row units with exhaust at a central location.

(note: some systems have multiple fans = multiple exhausts)



Equipment Manufacturers Multi-Pronged Approach

Testing of Bayer Alternative Lubricating Powder.

- Current lubricating substance is typically graphite, talc or a blend.
- These tests are to simply validate the powder's performance in the equipment, confirming no detrimental effects to performance.
- AGCO, Case-New Holland, Great Plains, Kinze and John Deere are currently conducting laboratory tests and field tests are scheduled to begin shortly.

Industry participation in the Pollinator Partnership Corn Dust Study.

- Data may prove useful in development of standard.

Collaborating with seed industry to compile "best practices": seed handling, machine maintenance/cleaning, seed box loading, etc.

Development of International Standard - ISO/CD 17962

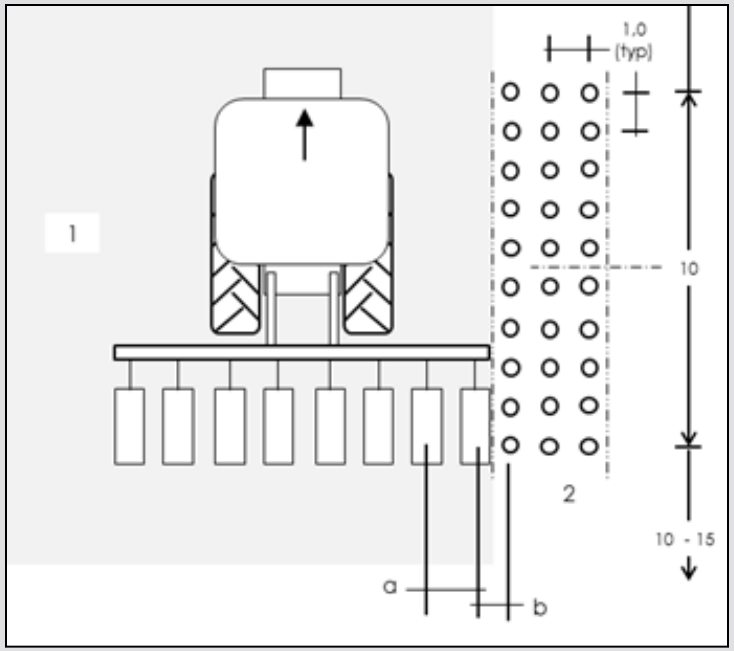
ISO/CD 17962: The standard will offer provisions and guidelines for manufacturers to consider as they develop technical solutions based on performance characteristics to address the minimization of fugitive dust.

Timeline – Started April 2011(ISO/TC23/SC3 Plenary – Belgium)

- ISO/TC23/SC3 commissioned US lead on international standard project
- US and Canadian Subject Matter Experts convened in Burr Ridge, IL
- Current Status - Committee Draft submitted to ISO for global distribution and subject matter expert comments.
- In June 2013 the Working Group will meet to resolve comments from National Bodies. It then becomes a Draft International Standard.
- Final publication is expected in 2015.

ISO/CD 17962

This standard provides guidelines for machine designers and test engineers in the development of optimal and viable solutions. This more robust approach, promoted via use of international standards, allows individual companies to exercise engineering flexibility and encourages innovative solutions without compromising customer demands and expectations in performance.



ISO/CD 17962 includes alternative approaches to solution either by considering fan exhaust design or verification of fan exhaust characteristics through field testing.