

the seed enhancement company

Part of Croda International Plc



Innovate Advances in Seed Coating Technology—Opportunities to Improve Loading Capacities and Treated Seed "_____"

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Exceed The Seed Session ASTA Chicago December 4, 2017 Opportunities to Improve Loading Capacities and Treated Seed "_____"

- Lower dust and abrasion
 - retention of seed treatments—investment and efficacy
- Productivity
 - Faster drying coatings and batch time
 - Seeds flow faster, no clumping, "go fast" plant ability
 - Seed capacity for additional pest control, nutrients
- Seedling emergence and vigor
 - Preserve or enhance germination potential



Croda Investments in Incotec are Paying Off

- Historic Core in Vegetable Seed Enhancement
- Global leader in Veg and Field Crops
- Croda 2016 brings technical and business synergies
- North America 2016-2017
 - Salinas 2017 upgrades, efficiencies, R&D pipeline
 - Exciting uptake of new L-650 for soy, corn, wheat
 - Innovation Center 2018 further R&D & Commercial Step Changes, plus Upscale for global commercial projects and customer demos and training
- Incotec's 50th Anniversary 2018
 - Pipeline expanding globally



L-650 improves dry flow and dust-off dramatically

• Soybean example



DISCO L-650 for Multiple Crops (examples)



One coating for many crops simplifies supply SKUs



L-650 Advances Seed Treatment Performance

- Significantly reduces dry time, tack, and clumping
- Excellent cosmetic coverage
- Improves wet and dry flow times
- Minimizes dust (40-60% vs. standard)
- Improved abrasion resistance
- Germination quality retained up to
 24 months (still measuring)
- For multiple crops: soybeans, corn, rice, wheat, dry beans, popcorn, sweet corn, more





Encrusting Field Crops—Industry Step Change



Abrasion Resistance of Corn Encrustment

Treatment 1



Treatment 2



 Encrusted seeds show minimal/no abrasion and appear shinier after tumbling

Method – 250 g of seed tumble 20 minutes 30 rpm

After Abrasion

Before Abrasion







Summary of Corn Seed Encrustment Performance

- Encrusted corn with Incotec proprietary technology...
 - Flow similar to film coated seeds, no issues with bridging
 - Minimal/no abrasion
 - Cosmetics improved after tumbling, resulting in shinier seeds
 - Reduce dust-off up to 55% versus raw seed
 - Have % plant ability comparable to raw seeds
 - Normal to improved cold germination





Encrusting Field Crops—Industry Step Change



Fluidus



Green Fluidus





Blue Fluidus







New film coats, including with extra Luster, Sparkle, and Performance—multiple crops





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Summary: New Coatings Advance Seed Treatment

- Lower dust and abrasion
 - retention of seed treatments—investment and efficacy
- Productivity
 - Faster drying, better batch times, less clean out
 - Seeds flow faster, no clumping, "go fast" plant ability
 - Seed capacity for additional pest control, nutrients
- Seedling emergence and vigor
 - Preserve or enhance germination potential
- Encrustment adds significant:
 - Capacity for additional actives, nutrients, microbes
 - Build up to save small or poorly shaped seeds
 - Ability to separate treatment components



Synergies Are Coming from Croda and Incotec

Pipeline filling for vegetables and field crops

The world of INCOTEC Field Crops, Veg & Ornamentals



UPGRADING



PRIMING



DISINFECTION



ANALYTICAL SERVICES



APPLICATION ACTIVES



ENCRUSTING & PELLETING



FILM COATING