TRUE RATE AND FINGER PICKUP PERFORMANCE RATE CHARTS SUPPLEMENT MANUAL

M0292 Rev. 8/21

This manual is applicable to: Planters Equipped with True Rate and Finger Pickup Seed Meters

Kinze Manufacturing, Inc. thanks you for your patronage. We appreciate your confidence in Kinze farm machinery. Your Kinze planter has been carefully designed to provide dependable operation in return for your investment.

This manual has been prepared to aid you in the operation and maintenance of the planter. It should be considered a permanent part of the machine and remain with the machine when you sell it.

It is the responsibility of the user to read and understand the Operator Manual in regards to safety, operation, lubrication and maintenance before operation of this equipment. It is the user's responsibility to inspect and service the machine routinely as directed in the Operator Manual. We have attempted to cover all areas of safety, operation, lubrication and maintenance; however, there may be times when special care must be taken to fit your conditions.

Throughout this manual the symbol  and the words **DANGER, WARNING,** and **CAUTION** are used to call attention to safety information that if not followed, will or could result in death or injury. **NOTICE** and **NOTE** are used to call your attention to important information. The definition of each of these terms follows:

DANGER	**Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations, typically for machine components which, for functional purposes, cannot be guarded.**
WARNING	**Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.**
CAUTION	**Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.**
NOTICE	**Used to address safety practices not related to personal injury.**

NOTE: Special point of information or machine adjustment instructions.

OVERVIEW

SEED METER OPERATION

PERFORMANCE RATE CHARTS

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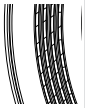
VACUUM SETTINGS

Crop		**Seed Disc Kit	Seed Disc Part No.	Ejector Wheel (Color)	Cells	Seed Size Range	Singulator Zone Setting	Vacuum Setting Inches of Water (kPa)	Lubricant
	Corn ‡ Large Sweet Corn	G11043X	B1219 (Light Blue)	1 row 5 punches (Light Blue)	40	35-70 lbs/80k (2500-5000 seeds/kg)	2	18-20 (4.5-5.0)	**Graphite* Talc*** Bayer Fluency† (if mandated)
	Soybean	G11047X	B1232 (Black)	2 rows 6 punches (Black)	120	2200-4000 seeds/lb (4850-8820 seeds/kg)	0	10-14 (2.5-3.5)	**Graphite* Talc*** Bayer Fluency† (if mandated)
	Soybean Disc	G11048X	B1238 (Black)	1 row 6 punches (Green)	60	2200-4000 seeds/lb (4850-8820 seeds/kg)	0	10-14 (2.5-3.5)	**Graphite* Talc*** Bayer Fluency† (if mandated)
	Sugar Beet	G11045X	B1229 (Dark Orange)	1 row 6 punches (Dark Orange)	60	Pelletized	2	15 (3.75)	**Graphite*** Bayer Fluency† (if mandated)
	Milo	G11045X	B1229 (Dark Orange)	1 row 6 punches (Dark Orange)	60	10,000-20,000 seeds/lb (22000-44000 seeds/kg)	2	15 (3.75)	**Graphite* Talc*** Bayer Fluency† (if mandated)
	Sunflower ‡ Small Sweet Corn	G11044X	B1230 (Gray)	1 row 5 punches (Gray)	40	Oil seeds #2, 3, 4	2	12-18 (3.0-4.5)	**Graphite* Talc*** Bayer Fluency† (if mandated)
	Sunflower	G11044X	B1230 (Gray)	1 row 5 punches (Gray)	40	Oil seeds #5	2	5-8 (1.25-2.0)	**Graphite* Talc*** Bayer Fluency† (if mandated)
	Specialty Disc 1	G11039X	B1233 (Green)	1 row 6 punches (Green)	60	Cotton	2	15-20 (3.75-5.0)	**Graphite* Talc as needed*** Bayer Fluency† (if mandated)

Continued on next page.

VACUUM SETTINGS

Crop		**Seed Disc Kit	Seed Disc Part No.	Ejector Wheel (Color)	Cells	Seed Size Range	Singulator Zone Setting	Vacuum Setting Inches of Water (kPa)	Lubricant
	Specialty Disc 2	G11040X	B1235 (Brown)	1 row 6 punches (Green)	60	Black turtle & navy edible beans	2	15-20 (3.75-5.0)	**Graphite* Talc as needed*** Bayer Fluency† (if mandated)
	Specialty Disc 3	G11041X	B1234 (Dark Blue)	1 row 6 punches (Green)	60	Pinto & Great Northern edible beans & low-rate soybean	2	15-20 (3.75-5.0)	**Graphite* Talc as needed*** Bayer Fluency† (if mandated)
	Wheat Disc	G11042X	B1236 (Purple)	Brush Type	54	N/A Volumetric	0	6-16 (15-41)	**Graphite* Talc as needed*** Bayer Fluency† (if mandated)

Install selected seed disc. Position vacuum cover on meter by aligning keyhole slots over bolt heads. Push cover on meter and turn counter clockwise to lock in place.

***For More information on application rate, see Additives section.**
****Includes seed disc, ejector wheel, and spring.**

†Bayer Fluency Agent is only required to be used in place of graphite or talc lubricants on vacuum equipped planters that are sowing neonicotinoid treated seeds in Canada. Refer to the Bayer Fluency Agent section for more information.
‡Conventional hoppers only, not applicable with bulk fill.

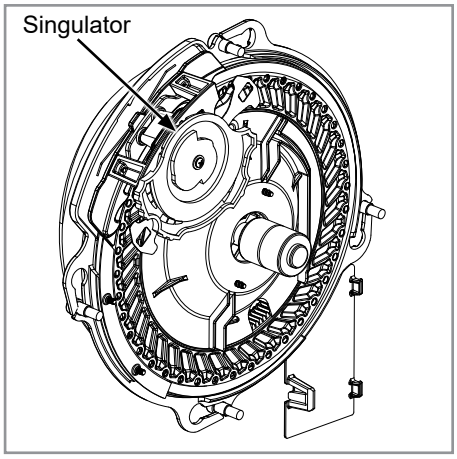
NOTE: See “Field Check Seed Population” in Operator's Manual for more information. Always field check seed population to ensure planting rates are correct.

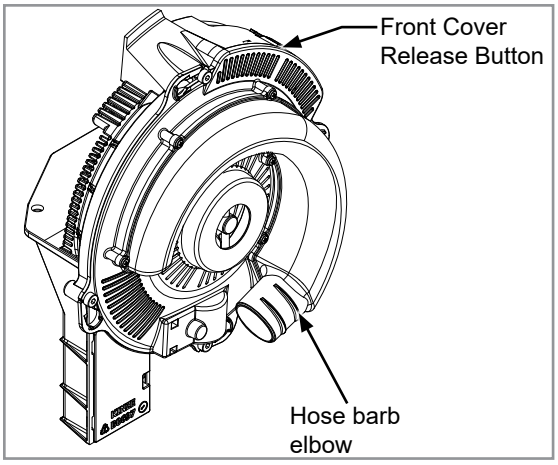
NOTE: Singulator settings are marked from 0 - 3.

NOTE: Mixing seed sizes and shapes affects meter performance. Use consistent seed size and shape.

NOTE: Use 1 tablespoon powdered graphite with each standard hopper fill of seed. Seed treatment, foreign material, dirt or seed chaff may cause gradual reduction of seed disc fill (population). See “Additives” pages for more information.

NOTE: Excessive seed treatment, humidity, and light-weight seed can affect meter performance. Use ½ cup of talc with each standard hopper fill of seed and mix thoroughly to coat all seeds and adjust rates as needed. Use of talc aids seed flow into meter, singulation, and disc seed drop.



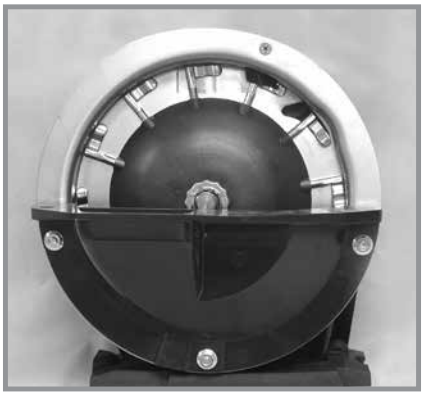


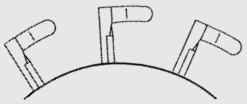
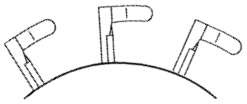
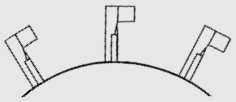
NOTE: Foreign material in seed disc orifices, such as seed chips, hulls, stems, etc., may affect seed delivery. Clean seed ensures accurate seed metering from vacuum seed meter. Remove Seed discs daily to check for buildup of foreign material in seed disc orifices.

Air inlet screens allow air to enter system and aids in keeping field residue or other foreign material out of meter.

See “Vacuum Seed Meter Maintenance” and “Preparation for Storage” in Lubrication and Maintenance section of Operator's Manual for more information.

FINGER PICKUP SEED METER



Crop	Fingers	*Lubricant
Corn	 Part No.: GR1848 - Finger Assembly, Corn	**Graphite** Talc
No. 1 and/or No. 2 size Confectionery Sunflower Seeds	 Part No.: GR1848 - Finger Assembly, Corn	Talc
No. 3 and/or No. 4 size Oil Sunflower Seeds	 Part No.: GR2154 - Finger Assembly, Oil	Talc
Blank fingers replace alternate fingers to reduce planting rate by half while allowing the finger wheel to maintain a minimum of 40 RPM when planting low rates.	 Part No.: GD11787 - Half Rate Blank Finger	**Graphite** Talc
***For More information on application rate see Additives section.**		
NOTE: Always field check seed population to verify planting rates.		
NOTE: Refer to planting rate charts in this manual for recommended seed drive transmission sprocket combinations.		

ADDITIVES

Lubricant Application Rate	
Graphite	
Conventional Hoppers	1 Tbs./Hopper Fill
Bulk Fill Hoppers	1 Pound Bottle/50 Unit Fill
80/20 Talc-Graphite	
Conventional Hoppers	½ C.**
Bulk Fill Hoppers	8 Pounds/50 Unit Fill**
**Must be evenly mixed during fill.	
Talc	
Conventional Hoppers	¼ C.*
Bulk Fill Hoppers	4 Pounds/50 Unit Fill*
*Double amount of talc for sunflowers.	

GRAPHITE

The use of graphite is the primary recommendation to promote seed flow, provide lubrication for the seed meter and to help dissipate static charge buildup. Among the available dry seed lubricants graphite is the most effective and easiest to use and it requires no mechanical agitation

Conventional Hoppers
Mix one tablespoon of **powdered graphite** with seed each time hoppers are filled. Regular graphite use prolongs life of the seed meter components, improves seed spacing, and may reduce buildup of seed treatments.

NOTE: DO NOT apply graphite only in center of hopper. It will filter too quickly through the seed and not distribute as evenly as desired.

Apply graphite around outer perimeter of hopper.

Bulk Fill Hoppers
Mix 1 pound bottle of powdered graphite each time the bulk seed hopper is filled. Graphite should be added in layers as the bulk seed hoppers are filled. Regular graphite use prolongs life of the seed meter components, improves seed spacing, and may reduce buildup of seed treatments.


Adding graphite to conventional hopper


Adding graphite bulk fill hopper

NOTE: Additional graphite may be required to retard buildup of seed treatments on meter components. More frequent cleaning of monitor seed tubes may be necessary due to use of additional graphite.

80/20 TALC-GRAPHITE
Talc-Graphite lubricant is to be used for treated seed, providing benefits of both talc and graphite. It absorbs mositure to prevent bridging, minmizes static electricity for improved seed flow, and lubricates seed and meters.

Conventional Hoppers
Mix ½ C. of 80/20 talc-graphite evenly with seed each time hoppers are filled. Regular graphite use prolongs life of the seed meter components, improves seed spacing, and may reduce buildup of seed treatments.

NOTE: Talc-Graphite lubricant MUST be mixed evenly during fill.

Bulk Fill Hoppers
Mix 8 lbs. of 80/20 talc-graphite each time the bulk seed hopper is filled. Regular graphite use prolongs life of the seed meter components, improves seed spacing, and may reduce buildup of seed treatments.

NOTE: Talc-Graphite lubricant MUST be mixed evenly during fill.

TALC

Talc seed lubricant may be used as a drying agent in addition to graphite lubrication. The drying agent may improve seed release and/or **to retard buildup of seed treatments on meter components.**

1. Fill hopper ½ full of seed, add ¼ cup (conventional); 2 pounds (Bulk Fill) of talc and **mix thoroughly**.
2. Finish filling hopper, add another ¼ cup (conventional); 2 pounds (Bulk Fill) of talc and **mix thoroughly**.
3. Adjust rate of talc use as needed so all seeds are coated, while avoiding a buildup of talc in bottom of hopper.

Humid conditions and/or small sized seeds with extra seed treatment may require additional talc to maintain meter performance.

NOTE: Liquid seed treatments or innoculants may create buildup on the seed disc or brushes. Check frequently for proper population and/or seed delivery when using any liquid seed treatment.

Completely mix all treatments with seed following manufacturers' recommendations. Seed treatment dumped on top of seed after hopper is filled may not mix properly and cause seed bridging, reducing population or stopping meter from planting.

BAYER FLUENCY AGENT

Bayer Fluency Agent is an alternate seed lubricant by Bayer Crop Science. The intent of this product is to replace graphite and talc lubricants and to lower the amount of dust emissions from planter vacuum fans.

This product, as tested by Kinze, is compatible with Kinze's bulk fill system and vacuum meters. Due to limited testing, wear life characteristics of meters and bulk fill systems that use Bayer Fluency Agent are not yet known. Please follow Bayer Fluency Agent instructions for rates and mixing directions.

NOTE: Presently, Bayer Fluency Agent is only required to be used in Canada with Bulk Fill or Vacuum planters that plant corn or beans treated with neonicotinoids. Farms outside of Canada, farms not using seed treated with neonicotinoids, and farms not using pneutmatic metering devices do not need to use Bayer Fluency Agent. All planters not equipped with vacuums or fans are exempt from using Bayer Fluency Agent.

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HOW TO USE PERFORMANCE RATE CHARTS

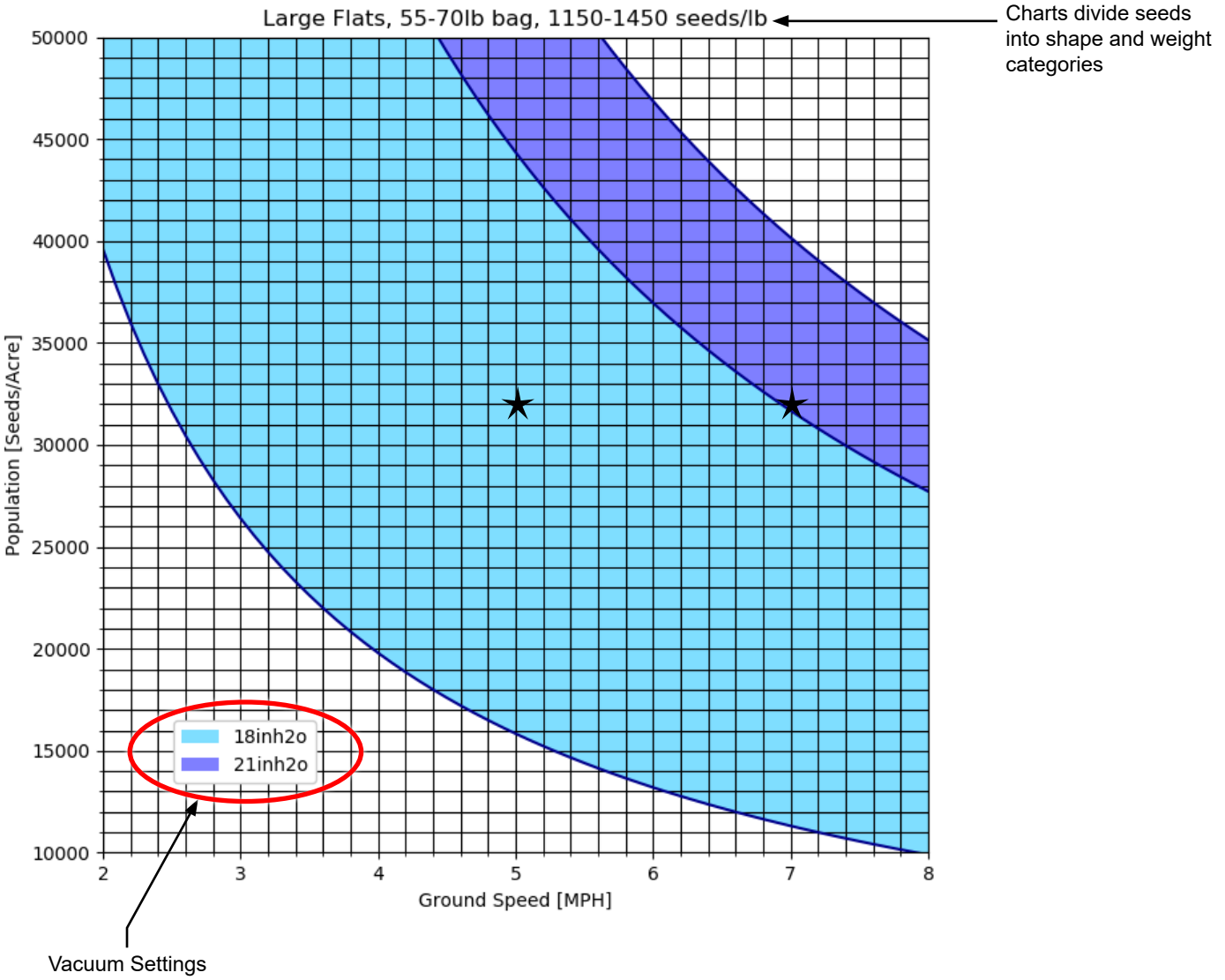
The Plantability charts show general meter performance with recommended seed lubrication and do not account for all singulator settings, seed treatments, seed shapes, and other field conditions. Charts are intended to help select the optimal planting speed and/or Vacuum setting to get optimal performance.

To use the charts:

1. Locate your desired population on the L.H. side of chart.
2. Locate your desired ground speed on the bottom of chart.
3. Trace a horizontal line from left to right from your population and a vertical line from bottom to the top from your ground speed.
4. The intersection of these two lines will indicate what the best achievable performance of the meter for that given seed shape and size.
5. Once you have identified the intersection point, refer to the section below for your specific Kinze meter.
6. See following pages for examples.

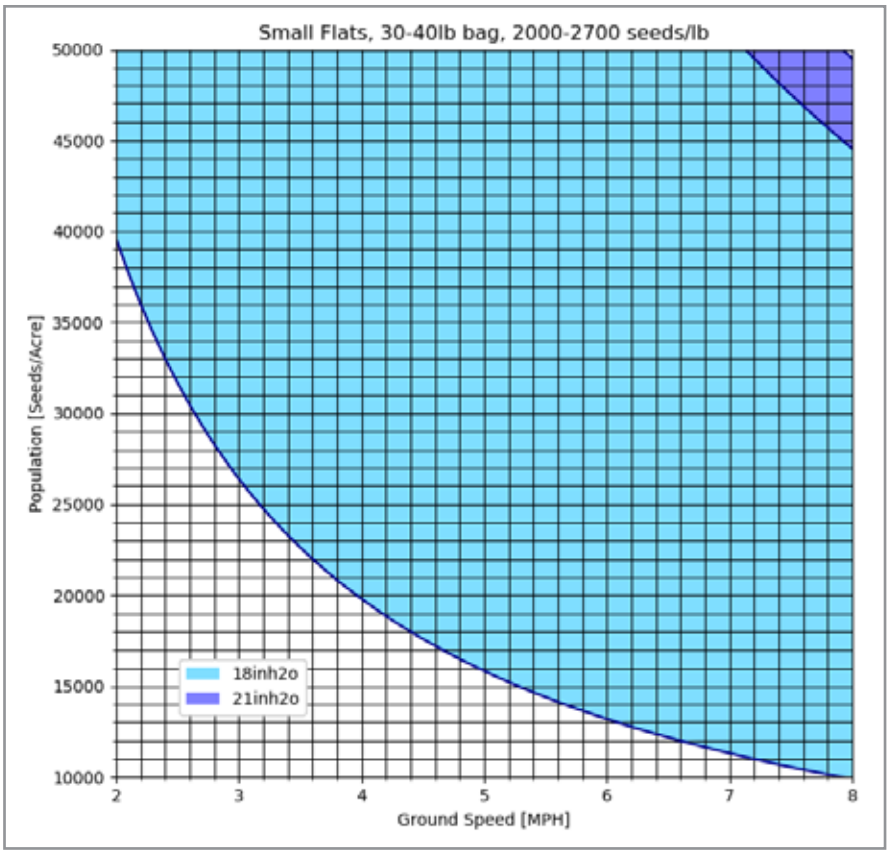
TRUE RATE METER (VACUUM)

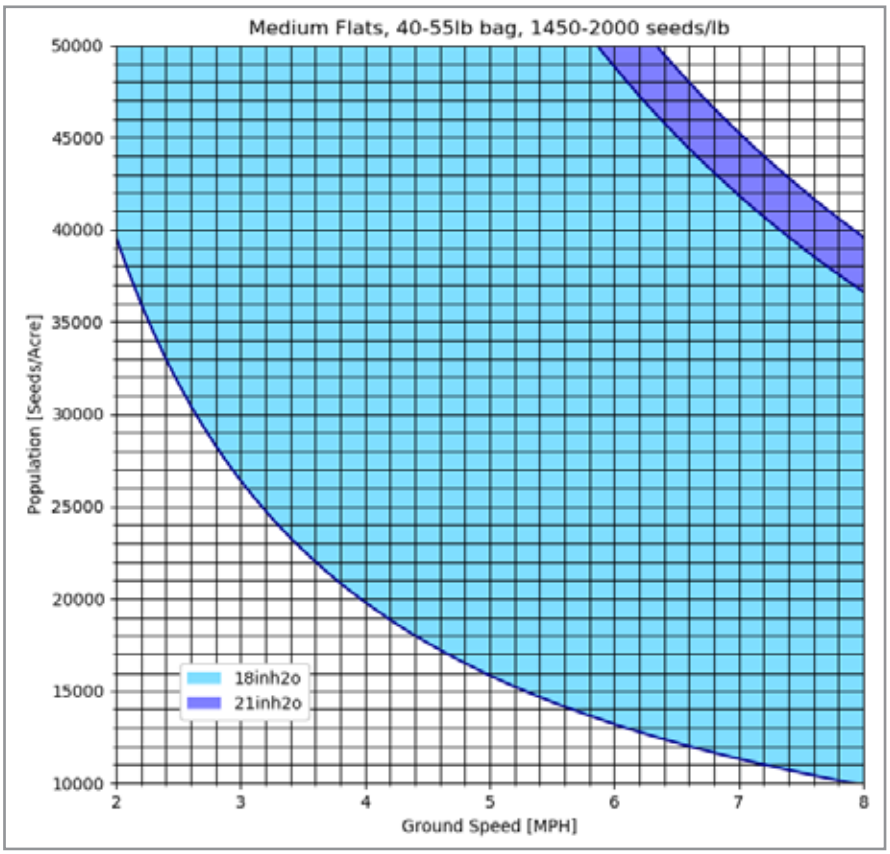
True Rate Meter Charts have two regions labeled: 18inh2o and 21inh2o. These regions represent where 99% singulation is achievable. To achieve 99% singulation at 18 inh2o of vacuum, the intersection of your population and speed lines must be inside the 18inh2o region.



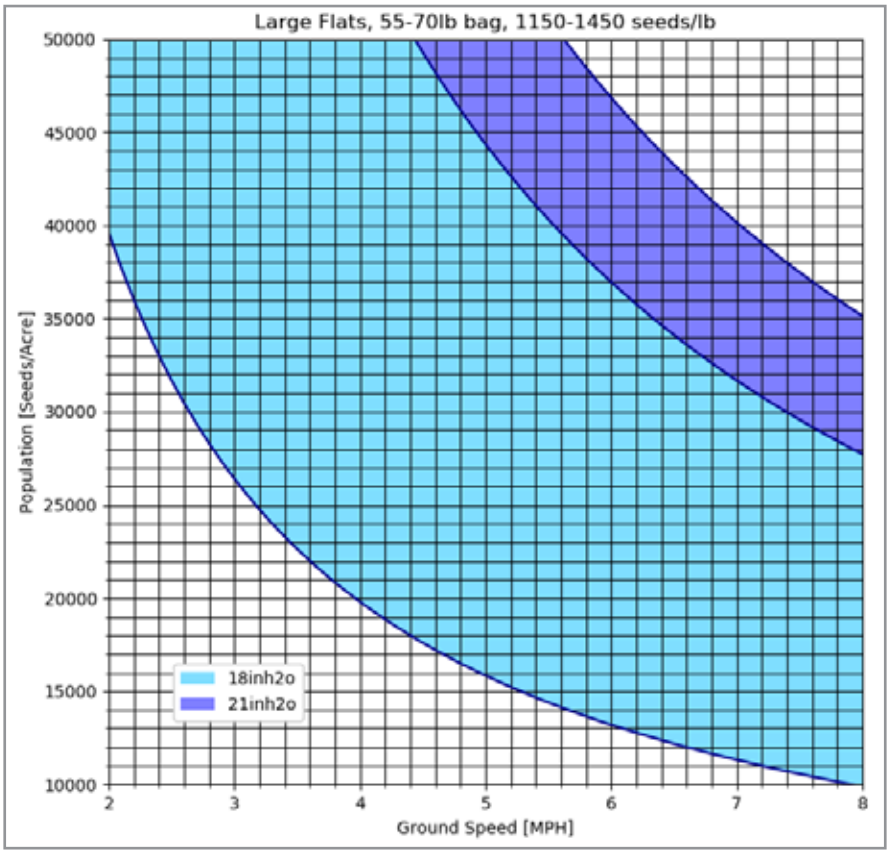
Example: A population of 32,000 seeds/acre using the Large Flats Chart. The intersection of 32,000 and 5 MPH is inside the 18inh2o region which means that 99% singulation is achievable for Large Flats planting at 5 MPH and with the vacuum set to 18inh2o. Follow the 32,000 line farther to the right, at around 7 MPH, you enter the 21inh2o region. This means that in order to maintain 99% singulation performance, the vacuum setting must be increased to 21inh2o. Any region outside of the 18inh2o and 21inh2o regions are conditions where neither 18 nor 21inh2o can achieve 99% singulation. If intersection falls outside these regions, it is recommended to alter ground speed until the intersection is inside a region where 99% singulation is achieved. Generally, the region to the bottom left will tend to have more doubles and the region to the upper right will tend to have more skips.

TRUE RATE METER (VACUUM) - CORN, 30" ROWS

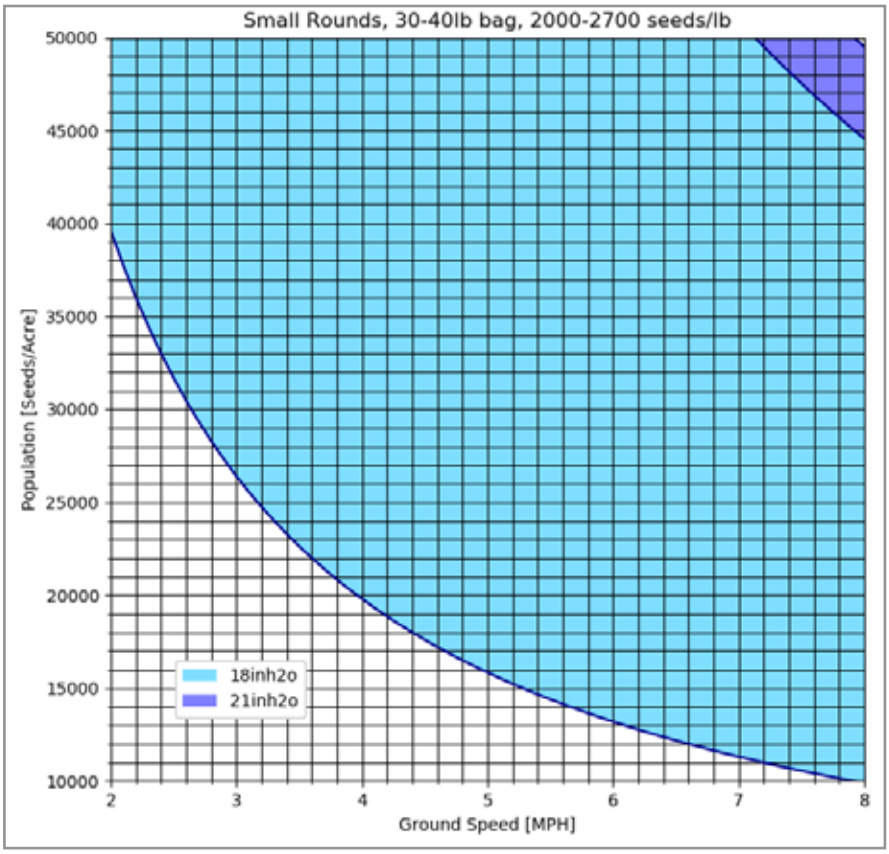


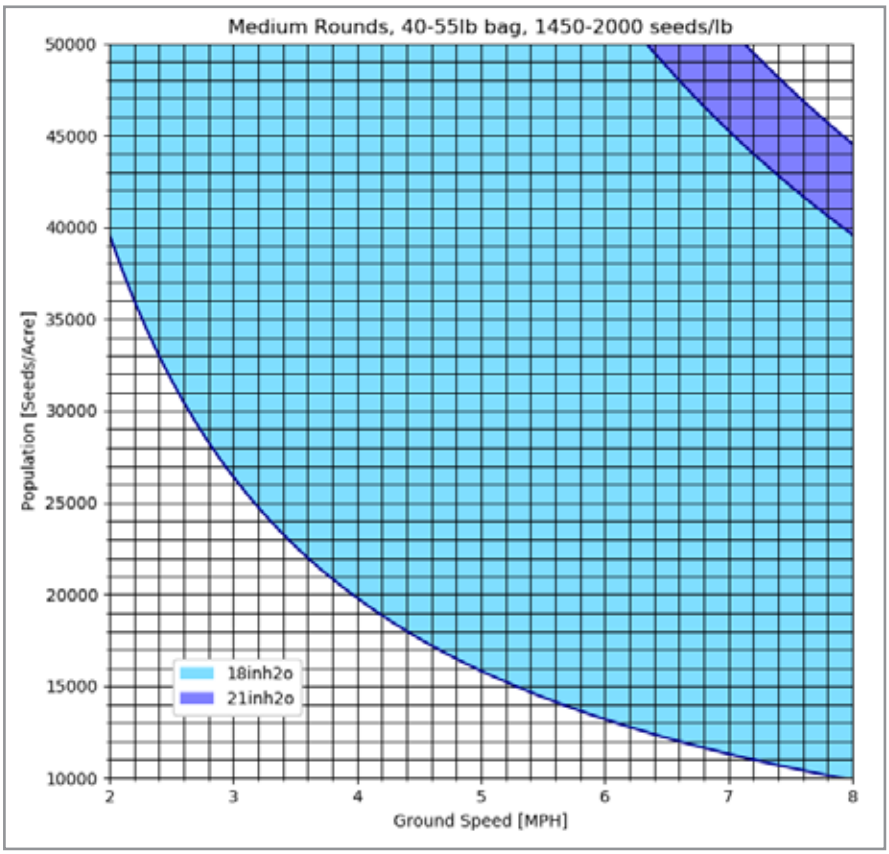


TRUE RATE METER (VACUUM) - CORN, 30" ROWS

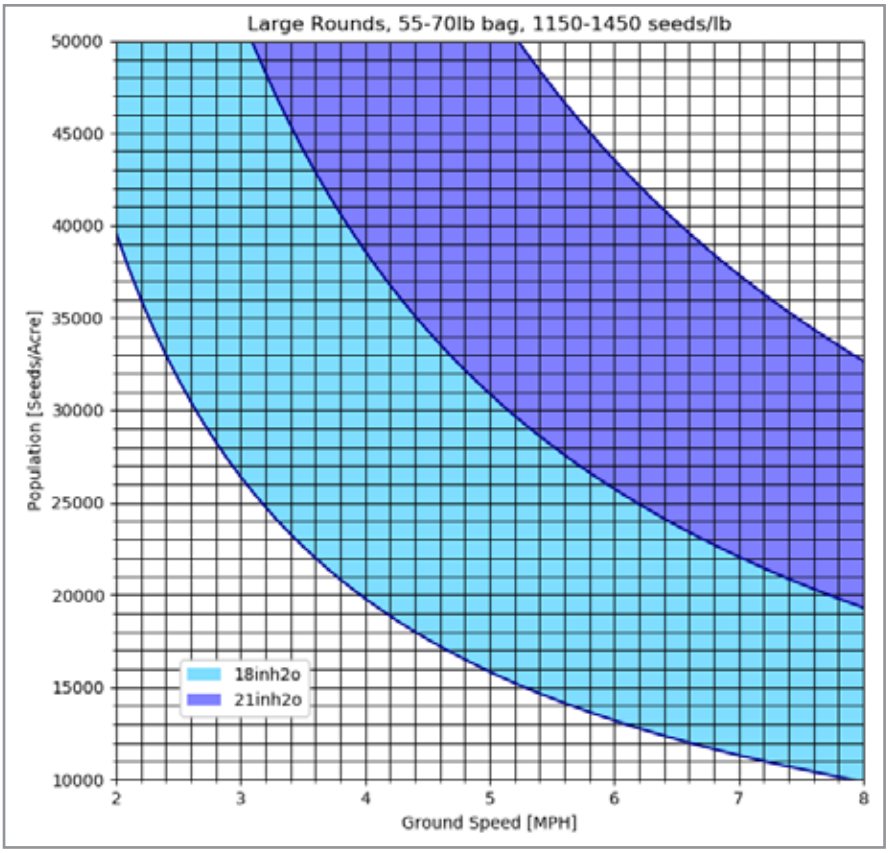


TRUE RATE METER (VACUUM) - CORN, 30" ROWS

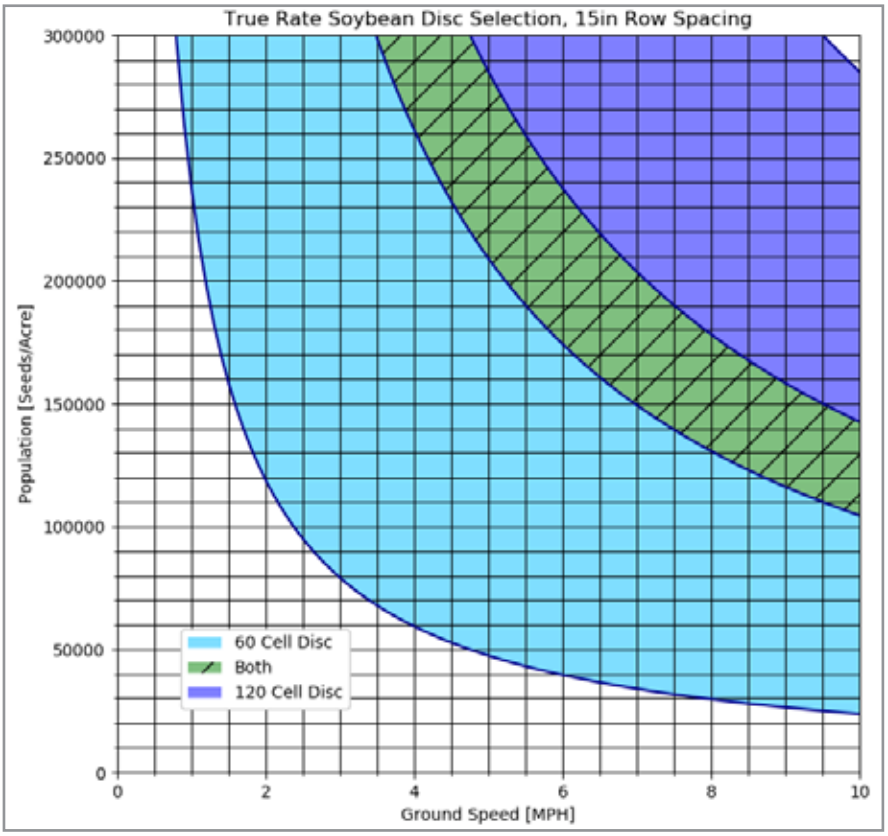




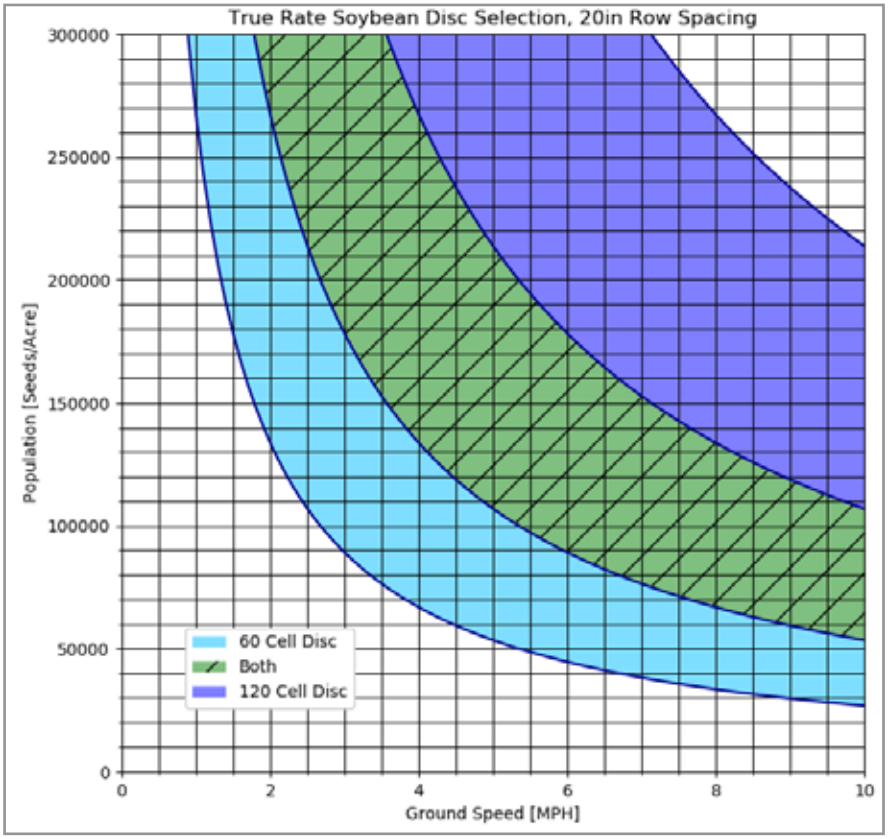
TRUE RATE METER (VACUUM) - CORN, 30" ROWS



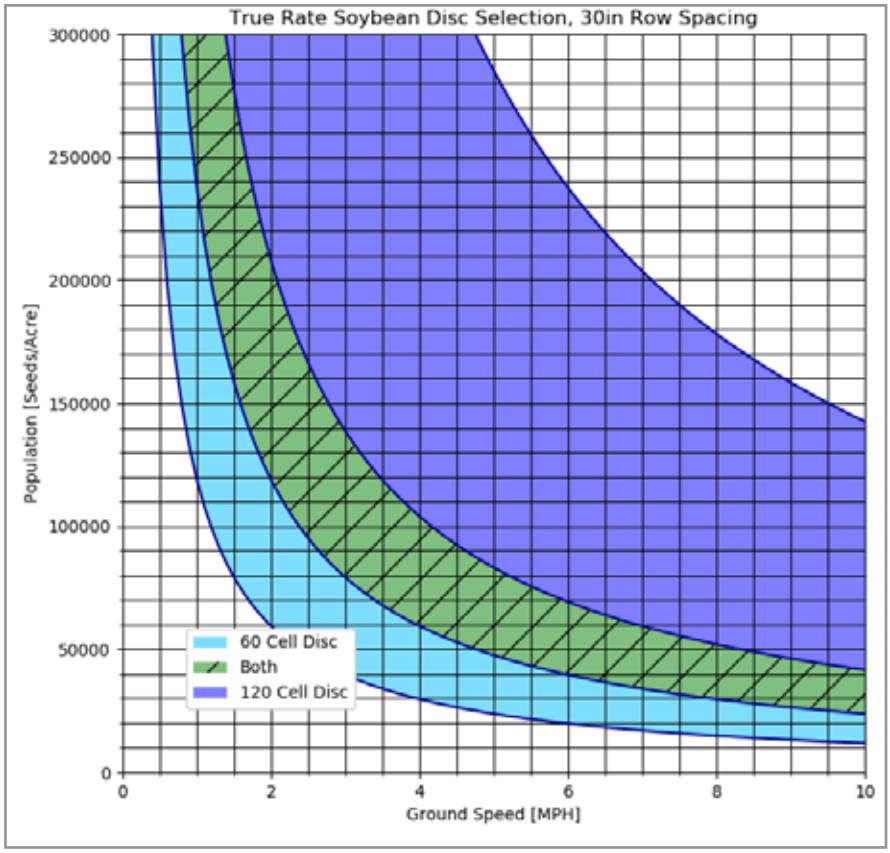
TRUE RATE METER (VACUUM) - SOYBEAN, 15" ROWS



TRUE RATE METER (VACUUM) - SOYBEAN, 20" ROWS

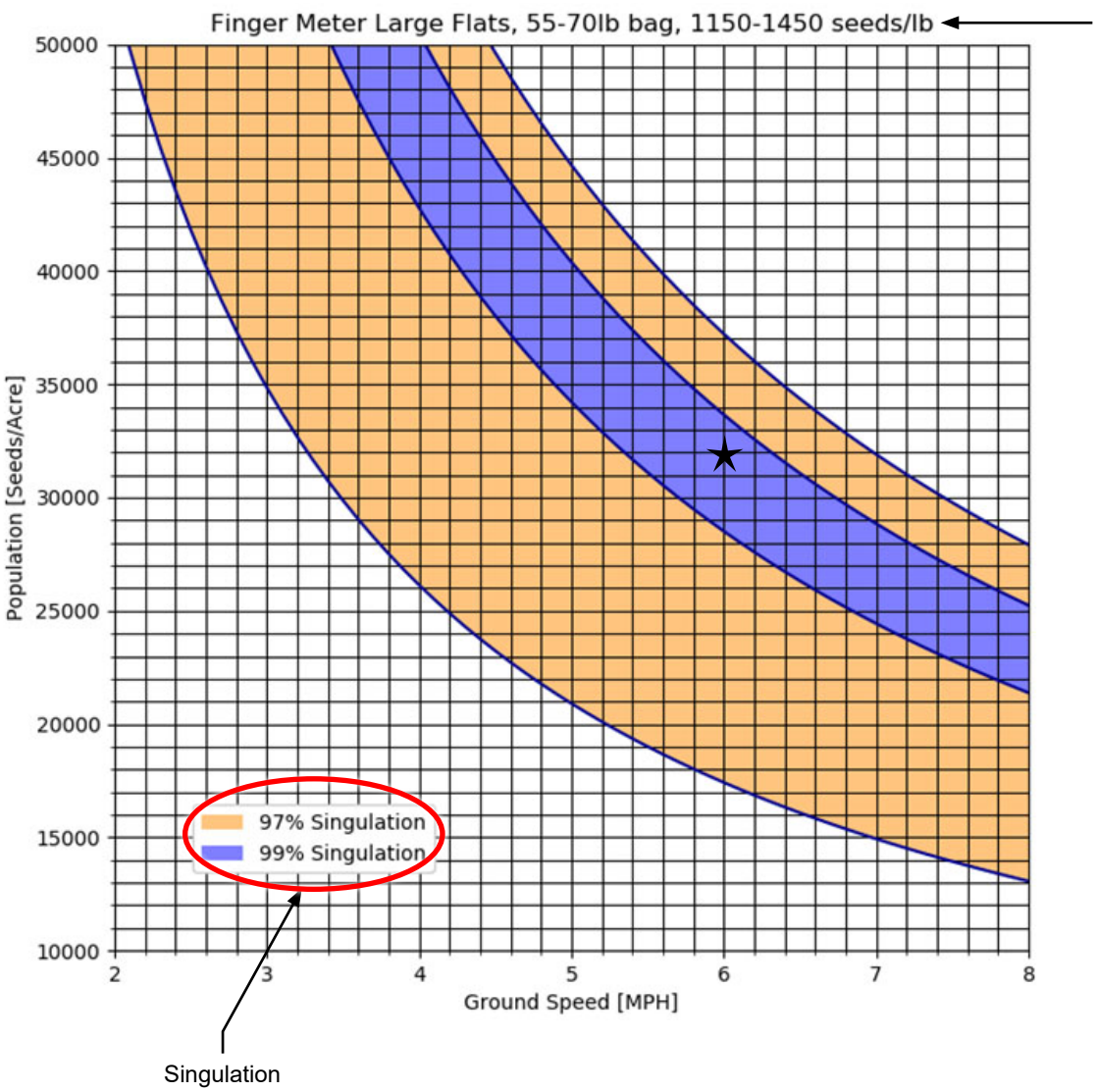


TRUE RATE METER (VACUUM) - SOYBEAN, 30" ROWS



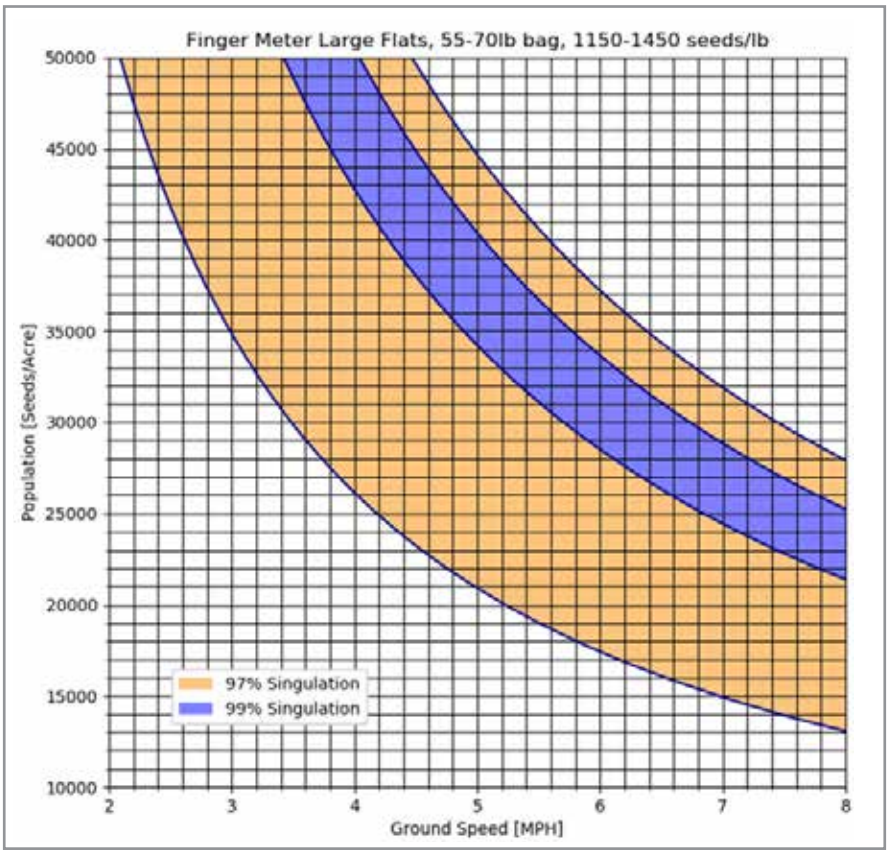
FINGER METER

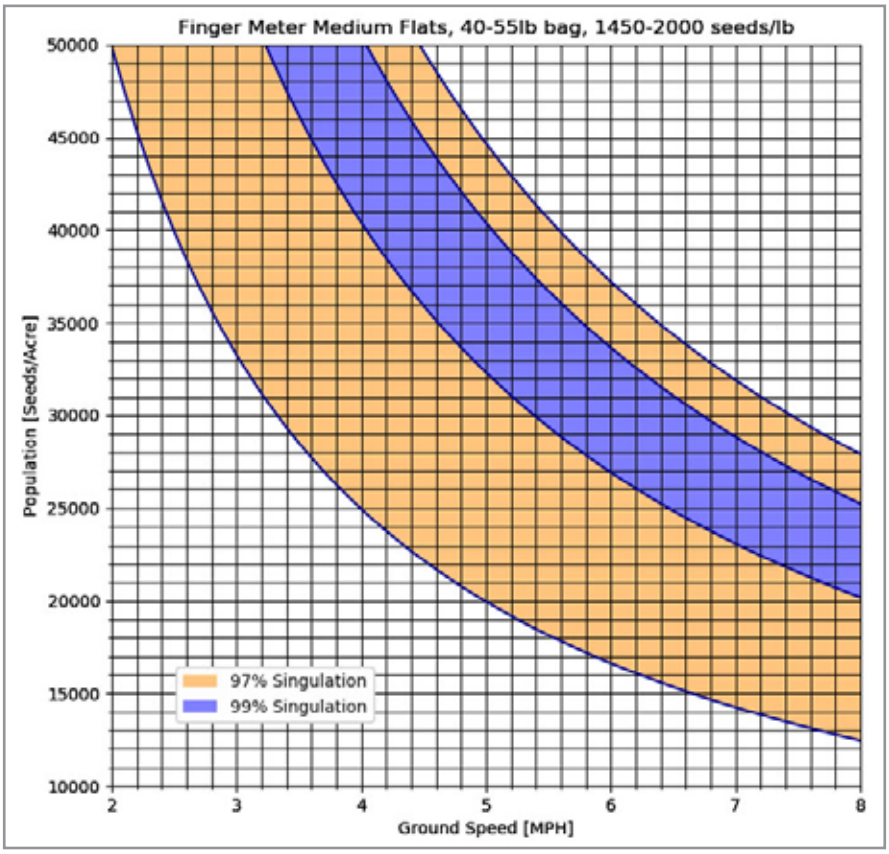
Finger Meter Charts have two regions labeled: 99% Singulation and 97% Singulation. These regions represent where 99% and 97% singulation is achievable. To achieve 99% singulation, the intersection of your population and speed lines must be inside the 99% singulation region.

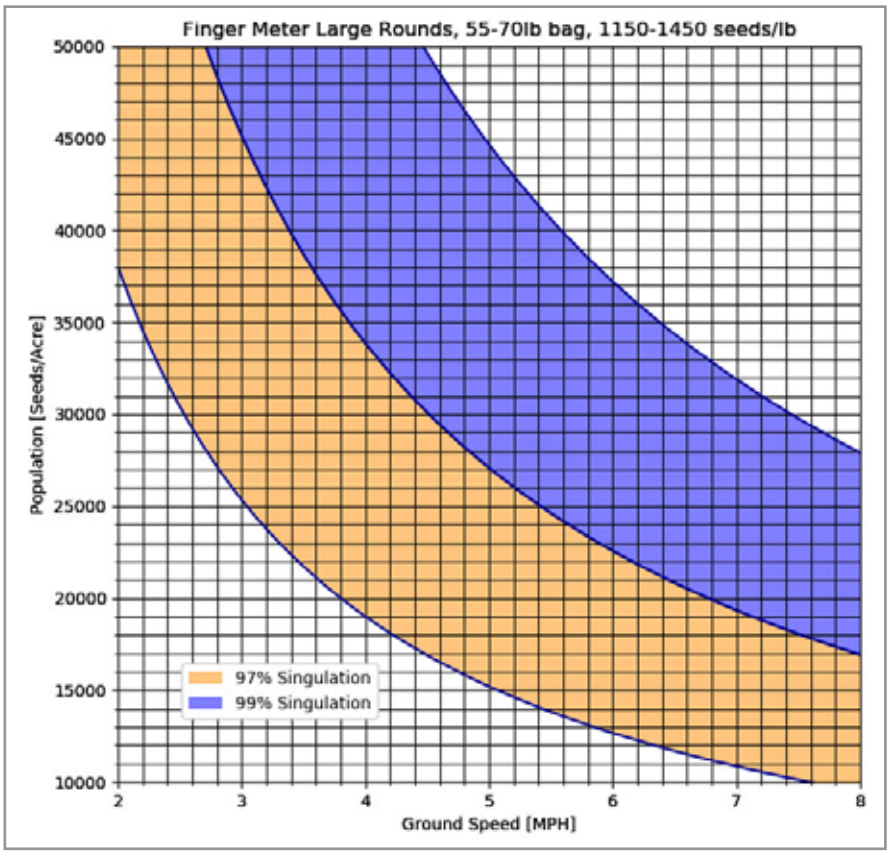


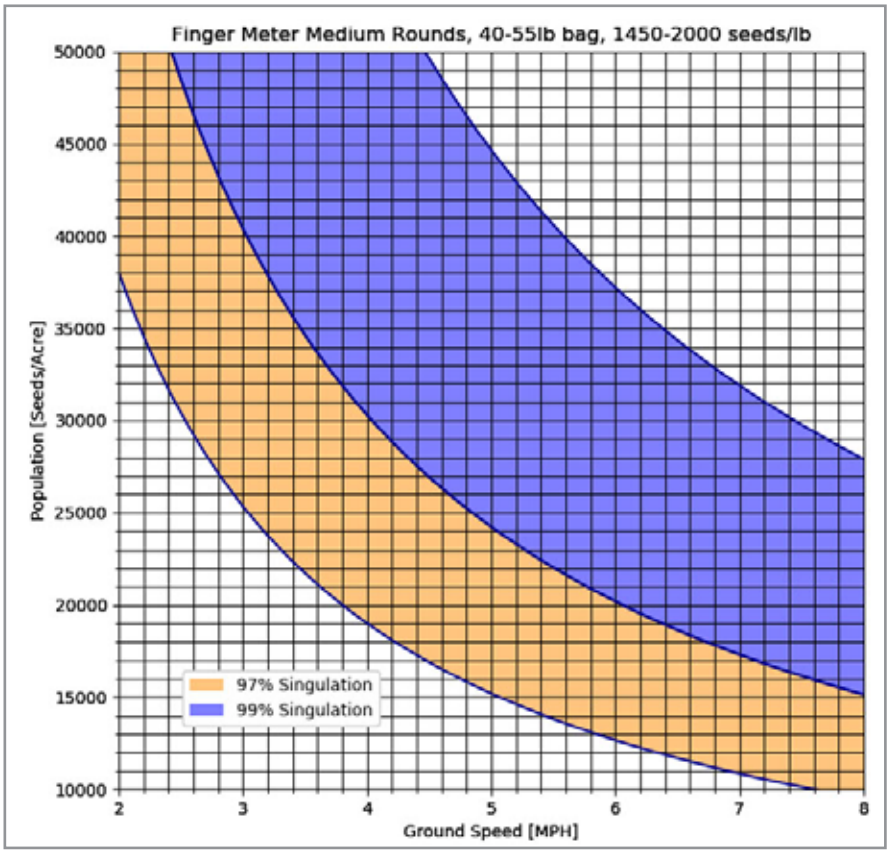
Example: A population of 32,000 seeds/acre using the Large Flats Chart. The intersection points for speeds between 3.5 and 7.0MPH fall within the 97% singulation region. The intersection points for speeds between 5.5 and 6.0MPH fall within the 99% singulation region. Meaning the best performance is achieved between 5.5 and 6.0MPH and performance drops off as you get faster or slower. Generally, the region to the bottom left will tend to have more skips and the region to the upper right will tend to have more doubles.

FINGER METER - CORN






Finger Meter Large Rounds, 55-70lb bag, 1150-1450 seeds/lb
Population [Seeds/Acre]
50000
45000
40000
35000
30000
25000
20000
15000
10000
2
3
4
5
6
7
8
Ground Speed [MPH]
97% Singulation
99% Singulation


Finger Meter Medium Rounds, 40-55lb bag, 1450-2000 seeds/lb
Population [Seeds/Acre]
50000
45000
40000
35000
30000
25000
20000
15000
10000
2
3
4
5
6
7
8
Ground Speed [MPH]
97% Singulation
99% Singulation