

SMBSC OBSERVATIONS FOR 2018 VARIETIES

These four pages are a summary of field observations over the past few seasons, as well as Official Trial data, SMBSC Strip Trial data, and seed company information on the varieties approved for 2018. This summary was compiled to provide another tool to help your variety selection for the 2018 crop.

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2018 FULL APPROVAL VARIETIES

Beta 92RR30: Beta 92RR30 was a Fully Approved Variety planted on approximately 15,000 acres in 2017. 92RR30 had near average performance on sugar and revenue per ton with below average performance on sugar and revenue per acre in the SMBSC Official Trials. Tolerance to *Cercospora* leafspot is better than average. 92RR30 has the best tolerance of the Approved Varieties to *Aphanomyces* root rot in the 2015 - 2017 nursery results and is designated *Aphanomyces* Specialty variety. *Rhizoctonia* ratings are average of the approved varieties; consider a foliar *Rhizoctonia* fungicide application at 4-8 leaf when planting 92RR30. 92RR30 has a stronger total disease package than other Fully Approved Varieties. Betaseed reports 92RR30 has strong root aphid tolerance and low to moderate Fusarium root rot tolerance.

Beta 9475: Beta 9475 was a Fully Approved Variety and *Cercospora* Specialty Variety for 2017 planted on approximately 24,000 acres. Beta 9475 performed well in the SMBSC Official Trials in 2017, though revenue per ton is below average. 9475 is a strong sugar per acre variety with average sugar per ton. *Cercospora* leafspot tolerance is the best of the Fully Approved Varieties, and it is also approved as a *Cercospora* Specialty Variety for 2018. *Rhizoctonia* root rot tolerance is average with 9475; consider a foliar *Rhizoctonia* fungicide application at 4-8 leaf. One weakness of 9475 is *Aphanomyces* root rot tolerance. The three year *Aphanomyces* ratings are weaker than average. For 2018, do not plant 9475 on fields with a history of high levels of *Aphanomyces*. Betaseed reports that 9475 has root aphid tolerance.

Crystal M375: Crystal M375 was a Fully Approved Variety in 2017 planted on 4,000 acres. Sugar per acre is near average for M375 and sugar per ton is below average. The disease nursery data, as well as field observations, indicate that M375 is weak on *Aphanomyces*, *Cercospora*, and *Rhizoctonia*. Because of these traits, careful placement of this variety and additional integrated management practices are required to be successful. Fields with low beet history and low disease potential are a good fit for M375. An aggressive CLS spray program is important with M375. In 2018, do not plant M375 on fields that are adjacent to 2017 sugar beet fields due to *Cercospora* risk. A post-emerge application of a fungicide for *Rhizoctonia* suppression should be considered necessary for M375. ACH Seeds reports that M375 has root aphid tolerance.

Crystal M380: Crystal M380 was a Fully Approved Variety planted on 6,000 acres. M380 performed at average on sugar per ton and below average on sugar per acre. M380 has a stronger total disease package than other Fully Approved Varieties. M380 has one of the best scores for *Aphanomyces* root rot resistance. *Cercospora* tolerance is near average with M380. *Rhizoctonia* root rot ratings are near average for M380. The application of a post-emerge fungicide treatment for *Rhizoctonia* suppression should be considered with M380. ACH Seeds reports that M380 has tolerance to root aphid and Fusarium root rot.

Crystal M579: Crystal M579 achieved both Full Approval Status and High Sugar Specialty Approval Status for 2018. In 2017 M579 planted approximately 4,000 acres as a Test Market Variety. In three years of testing in the Official Trials M579 had the highest recoverable sugar per ton of any variety tested. M579 was also topped the SMBSC Agriculturalist Strip Trials in 2017 on revenue. M579 was above average for recoverable sugar per acre. *Cercospora* leaf spot and *Aphanomyces* root rot ratings are near average for both these diseases. In the *Rhizoctonia* nurseries, M579 was weaker than average. Careful placement of M579 can bring out high return characteristics. A post-emerge fungicide application for *Rhizoctonia* suppression would be a good program with M579. ACH Seeds reports that M579 has tolerance to root aphids.

2018 TEST MARKET VARIETIES

Test Market Varieties usually possess two or more years of trial data and either have not been field-tested or require further observation. Varieties that have a Test Market designation may be planted on up to 10% of the Cooperative acreage. Test Market Status allows shareholders to get a look at new varieties on a limited acre basis as none of these varieties have been planted commercially in the SMBSC growing area.

Beta 9606: Beta 9606 achieved Test Market Status for 2018. Beta 9606 has a strong disease package. *Aphanomyces* root rot scores are near average for 9606. *Cercospora* Leafspot and *Rhizoctonia* root rot scores are above average for 9606. In two years of disease nursery testing, 9606 matches *Rhizoctonia* root rot scores with the current best performing *Rhizoctonia* Specialty Variety. Betaseed reports that 9606 has good root aphid tolerance. In the 2016-2017 Official Trials, 9606 had below average sugar and yield.

Beta 9661: Beta 9661 achieved Test Market Status for 2018. In the 2016-2017 Official Trials, 9661 had below average revenue per ton but average revenue per acre. 9661 has shown to have a good disease package in the 2016-2017 SMBSC Disease Nurseries. *Aphanomyces* root rot and *Rhizoctonia* root rot scores have been better than average for 9661. *Cercospora* leafspot scores have been near average for 9661. Betaseed reports that 9661 has root aphid tolerance.

Beta 9666: Beta 9666 achieved Test Market Status and High Sugar Specialty Status for 2018. In the 2016-2017 Official Trials, 9666 had near average sugar per ton and above average sugar per acre. In the SMBSC Disease Nurseries, 9666 showed above average tolerance to *Cercospora* leafspot, near average resistance to *Aphanomyces* root rot, and below average tolerance to *Rhizoctonia* root rot. Careful placement of 9666 can bring out high return characteristics. A post-emerge application of a fungicide for *Rhizoctonia* suppression should be considered necessary for Beta 9666.

Crystal M623: Crystal M623 achieved Test Market Status for 2018. In the 2016-2017 Official Trials, M623 had near average revenue per ton and per acre. In two years of disease nursery testing, M623 matches *Rhizoctonia* root rot scores with the current best performing *Rhizoctonia* Specialty Variety. In addition to being strong on *Rhizoctonia* root rot, M623 has shown to have a good all-around disease package. Disease nursery ratings place M623 at average scores for both *Aphanomyces* root rot and *Cercospora* leafspot. ACH reports M623 has good tolerance to root aphid.

SV RR863: SV RR863 achieved Test Market Status for 2018. In the 2016-2017 Official Trials, RR863 had above average revenue per acre and near average revenue per ton. RR863 performed strongly in the 2017 SMBSC Agriculturalist Strip Trials, consistently placed on the top end. *Cercospora* leafspot scores for RR863 place it in the *Cercospora* Specialty Approval category. In addition to stronger performance on *Cercospora* leafspot, RR863 has better than average *Rhizoctonia* root rot scores. RR863 is below average on *Aphanomyces* root rot, so careful placement of the variety will be important in potential *Aphanomyces* infected fields.

SV RR958: SV RR958 achieved Test Market Status for 2018. RR958 was planted on approximately 4,000 acres in 2017. RR958 had below average sugar per ton and sugar per acre in the 2015-2017 Official Variety Trials. The *Cercospora* leaf spot and *Rhizoctonia* root rot ratings are average of the Fully Approved Varieties. The *Aphanomyces* root rot ratings for RR958 are weaker than average.

2018 Specialty Approved Varieties:

These varieties do not make the requirements for Full Approval; however, *Aphanomyces*, *Rhizoctonia*, or *Cercospora* nursery testing and field observations indicate these varieties possess better than average tolerance to these diseases.

Crystal RR018 (Rhizoctonia Specialty Variety): Crystal RR018 was a *Rhizoctonia* Specialty Variety in 2017 planted on approximately 40,000 acres. RR018 has performed strongly in the field the past several seasons. RR018 has weaker than average ratings for *Aphanomyces* and stronger than average ratings for *Cercospora* leaf spot. The *Rhizoctonia* root rot ratings are stronger than average and it was granted *Rhizoctonia* Specialty Approval for 2018. ACH reports that RR018 has some resistance to root aphid and is rated as good on Fusarium root rot.

Hilleshog 9093RR (Rhizoctonia Specialty Variety): Hilleshog 9093RR has been a *Rhizoctonia* Specialty Variety from 2009 - 2018. 9093RR continues to show strong resistance ratings to *Rhizoctonia* root rot in the disease nurseries. It is consistently one of the best varieties in the *Rhizoctonia* nurseries. 9093RR is weaker than average on *Aphanomyces* and has average *Cercospora* leaf spot ratings. 9093RR has below average sugar per ton and sugar per acre.

Hilleshog 9739 (Rhizoctonia Specialty Variety): Hilleshog 9739 achieved Test Market Status for 2018 and was planted on approximately 1,000 acres. 9739 has both strong *Cercospora* leaf spot tolerance as well as above average tolerance to *Rhizoctonia* root rot. Hilleshog 9739 is a good defensive variety for these diseases. 2015-2017 Official Trial yield results for 9739 have been below average for recoverable sugar per ton and recoverable sugar per acre. *Aphanomyces* ratings are weaker than average for 9739.

Beta 9505 (Cercospora Specialty Variety): Beta 9505 is one of the best varieties for *Cercospora* leaf spot ratings in the 2015-2017 CLS nurseries. The CLS ratings are better than any of the Fully Approved Varieties. 9505 has below average recoverable sugar per acre, but slightly below average recoverable sugar per ton in the 2015-2017 Official Trials. *Aphanomyces* root rot ratings are also better than average for 9505. *Rhizoctonia* ratings are near the average of the Fully Approved Varieties. In 2017, a couple of fields planted to 9505 showed symptoms of rhizomania. For 2018, it is advised to not plant 9505 on fields with high rhizomania potential.

Maribo MA109RR: Maribo MA109RR has been a *Rhizoctonia* Specialty Variety for the past several years. The *Rhizoctonia* root rot rating of MA109RR has been among the best of any variety in the SMBSC Official Trials in each of the past three years. MA109RR has average revenue per ton and below average revenue per acre of the Approved Varieties. *Cercospora* leaf spot ratings are average. It has average ratings on *Aphanomyces* root rot. MA109RR has a smaller canopy than most varieties which is readily apparent when planted side by side to other varieties.

2018 Conventional Test Market Varieties:

SMBSC has been conducting Conventional Trials for two years, 2016 and 2017. SMBSC has approved one conventional variety for sale in 2018 as a Test Market Variety. In 2017 the conventional entries were also placed in the disease nurseries, but were not included in the disease nurseries for 2016.

Hilleshog 3035RZ: Hilleshog 3035RZ was a conventional variety planted in SMBSC prior to the introduction of RoundUp Ready technology in sugarbeets. 3035RZ has been entered into the SMBSC Disease Nurseries for only one year. In one year of testing, 3035RZ has shown strong resistance to *Rhizoctonia* root rot. It has shown near average ratings for both *Aphanomyces* root rot and *Cercospora* leafspot in one year of testing. 3035RZ has lower than average recoverable sugar per ton and per acre.

2018 Seed Selection Matrix

<u>Variety</u>	<u>Revenue</u> <u>per Ton</u>	<u>Revenue</u> <u>per Acre</u>	<u>Cercospora</u>	<u>Rhizoctonia</u> <u>Root Rot</u>	<u>Aphanomyces</u> <u>Root Rot</u>	<u>Rhizomania</u>	<u>Aphid</u>	<u>Fusarium</u> <u>Root</u>			
<u>2018 Fully Approved Varieties</u>											
Beta 92RR30											
Beta 9475											
Crystal M375											
Crystal M380											
Crystal M579											
<u>2018 Test Market Varieties</u>											
Beta 9606											
Beta 9661											
Beta 9666											
Crystal M623											
SV RR863											
SV 958RR											
<u>2018 Cercospora, Rhizoctonia, and Aphanomyces Specialty Varieties</u>											
Beta 9505											
Crystal RR018											
Hilleshog 9093RR											
Hilleshog 9739											
Maribo MA109RR											
<u>2018 Conventional Test Market Varieties</u>											
Hilleshog 3035RZ											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: green; padding: 2px;">Green = Better than average</td> </tr> <tr> <td style="background-color: yellow; padding: 2px;">Yellow = Near Average</td> </tr> <tr> <td style="background-color: red; padding: 2px;">Red = Weaker than average</td> </tr> </table>									Green = Better than average	Yellow = Near Average	Red = Weaker than average
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**based on 2016 and 2017 OVT data, Disease Nursery, and field observations.											