

TURNIP (*Brassica rapa* subsp. *rapa* ‘Purple Top White Globe’)

Common Scab; *Streptomyces* spp.

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### In-furrow treatment programs for management of turnip common scab-Grant, 2018.

A field trial was established in Grant, MI on 10 May (latitude 43°32'75.86"N and longitude - 85°66'68.96"W) on a grower's field for turnip common scab management. Soil type was Edwards muck, 0 to 1 % slopes. Turnip ‘Purple Top White Globe’ was planted on 7 Jun to evaluate selected fumigants and biologicals. Seed was planted at 1" depth into four-row by 100-ft plots (ca. 2" between plants to give a target population of 600 plants/100 ft. row) with 34" between rows (8" within row spacing) replicated four times in a randomized complete block design. In-furrow, at-planting applications of fungicide were delivered with a hand-held R&D spray boom delivering 10 gal/A (50 psi.) and using one XR8002VR nozzle per row. All crop management was according to the grower's standard practices. Turnip roots were hand-harvested on 16 Aug and individual treatments were weighed. Two rows of beets per plot were harvested 70 days after planting (DAP; 25 ft from middle of each plot from two center rows) and assessed for common scab. The number of total and marketable turnip roots was calculated. Turnip roots were washed and assessed for common scab (*Streptomyces* spp.) incidence (%) and severity. Common scab was measured as an index calculated by counting the number of roots falling in class: 1 = 1 lesion to 1%; 2 = 1.1-10% 3 = 10.1-20%; 4 = 20.1-30%; 5 = > 50% surface area. The number in each class was multiplied by the class number and summed. The sum was multiplied by a constant to express as a percentage. Increasing index values indicated the degree of severity. Severity of common scab was rated 72 DAP. The number of turnips falling into classes 0 to 3 was summed and a percentage calculated as marketable beets based on % scab severity.

Soil temperature and moisture conditions enhanced development of common scab throughout the growing season and was reflected in 100% incidence of the disease on harvested roots. No treatments were significantly different from the non-treated check in number of total roots. Treatments 2 (Pic Plus 100 lbs/A) and 4 (Pic Plus 150 lbs/A) had significantly higher total yield compared to the non-treated control. Similarly, the two treatments had significantly higher marketable yield (t/A) compared to the non-treated control. No phytotoxicity was observed from any treatments.

Treatment,rate and timing <sup>z</sup>	Number of total roots	Total yield (t/A) <sup>y</sup>	Marketable yield (t/A)	Scab severity <sup>x</sup> 138 DAP <sup>w</sup> (%)	Marketable roots (%) <sup>v</sup>
1. Non-treated control	153.5	2.7 bc	1.1 cd	80.5	29.0
2. Pic Plus 100 lbs/A (A)	177.3	5.9 a	3.6 a	72.9	40.2
3. Pic Plus 125 lbs/A (A)	167.8	4.1 b	1.9 bc	77.8	36.1
4. Pic Plus 150 lbs/A (A)	178.5	6.0 a	3.0 ab	70.1	51.0
5. Serenade 6qt/A (B)	150.3	2.1 c	0.8 d	75.6	40.7
6. Ethos XB 8.5 oz/A (B)	157.8	2.5 bc	1.1 cd	70.8	49.4
<i>P</i> > <i>F</i> <sup>y</sup>	0.68	<0.01	<0.01	0.322	0.19

<sup>z</sup> Application dates; A = 10 May (pre-planting); B = 7 Jun (at planting).

<sup>y</sup> Means followed by same letter are not significantly different at *P* = 0.05 according to Fishers LSD test.

<sup>x</sup> Severity of common scab was measured as an index calculated by counting the number of roots falling in class: 1 = 1 lesion to 1%; 2 = 1.1-10% 3 = 10.1-20%; 4 = 20.1-30%; 5 = > 50% surface area. Ratings were converted to percentages.

<sup>w</sup> DAP = days after planting on 7 Jun.

<sup>v</sup> The number of turnips falling into classes 0 to 3 was summed and a percentage calculated as marketable roots based on % scab severity.