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Wireworm research update 2017

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Outline

- Insecticide trial
- Wireworm movement
 - Horizontal movement
 - Vertical movement
- Laboratory feeding trial
- Integrated management of wireworms

INSECTICIDE TRIAL

Insecticide Trial, 2017



Figure 1: Mean number of blemishes (holes +scars) per tuber following an in-furrow insecticide application at planting in Russet Burbank potatoes, 2017

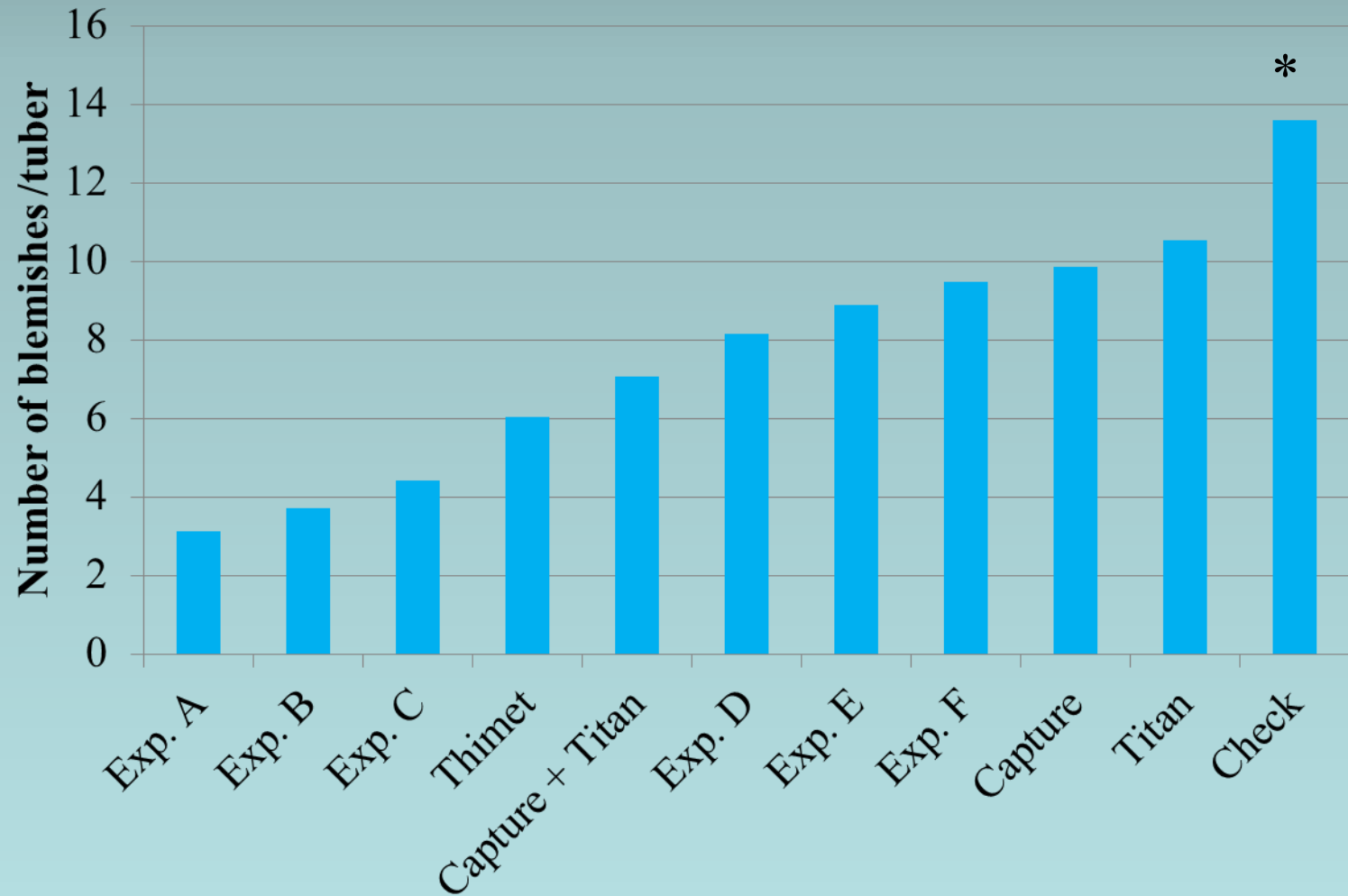
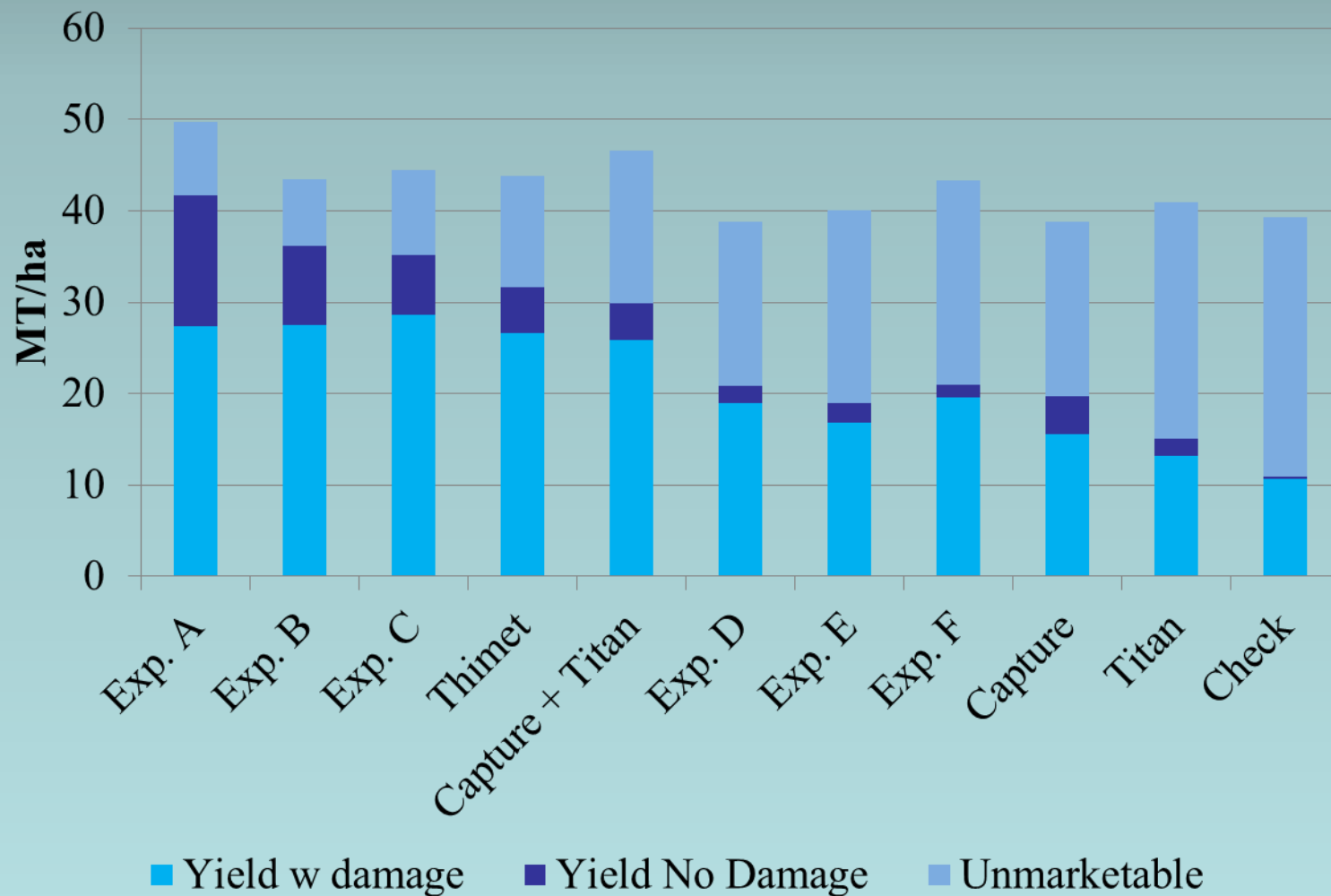


Figure 2: Marketable yield with damage, without damage and unmarketable yield following an in-furrow insecticide application at planting in Russet Burbank potatoes, 2017



Wireworm Movement

Vertical movement of wireworms *A. sputator*



Tubes removed once a month

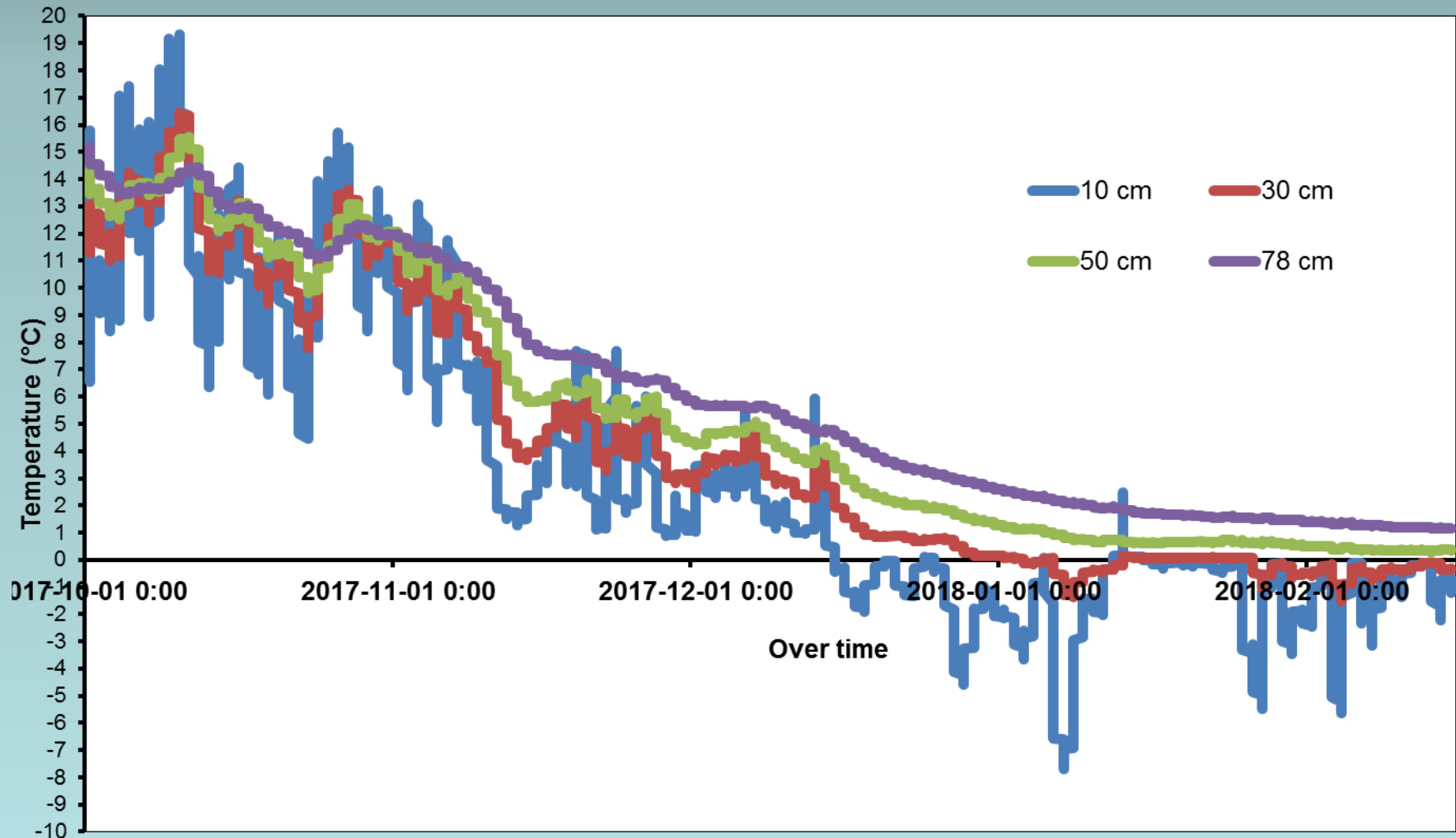


Tubes
cut into
7.62cm
or 3in
sections



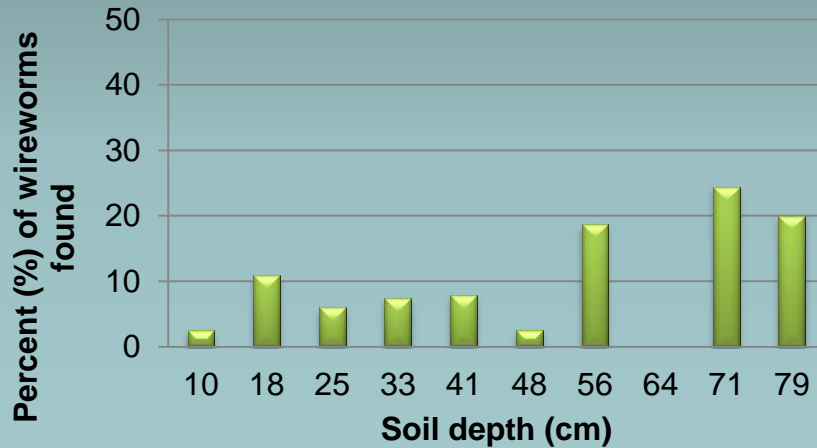
Vertical movement of wireworms *A. sputator*

Temperatures (°C) at four different soil depths in Harrington PEI from Oct 2017 to Feb 2018

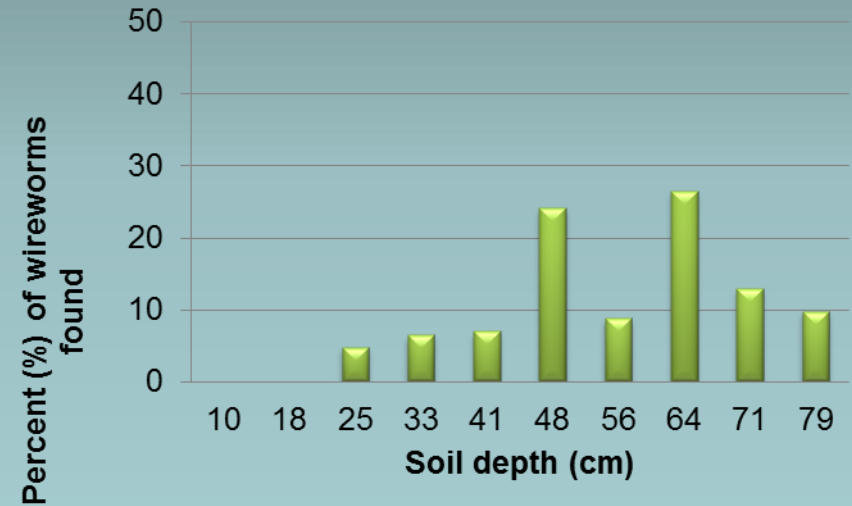


Vertical movement of wireworms *A. sputator*

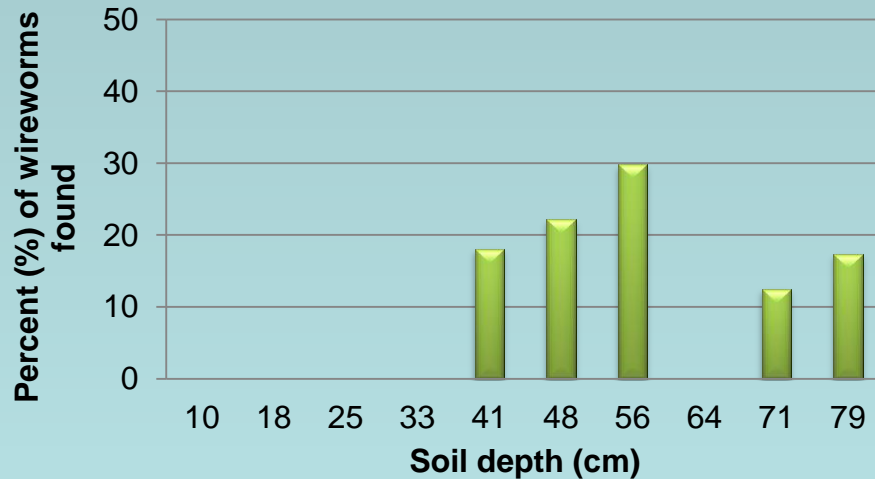
14 Nov 2017



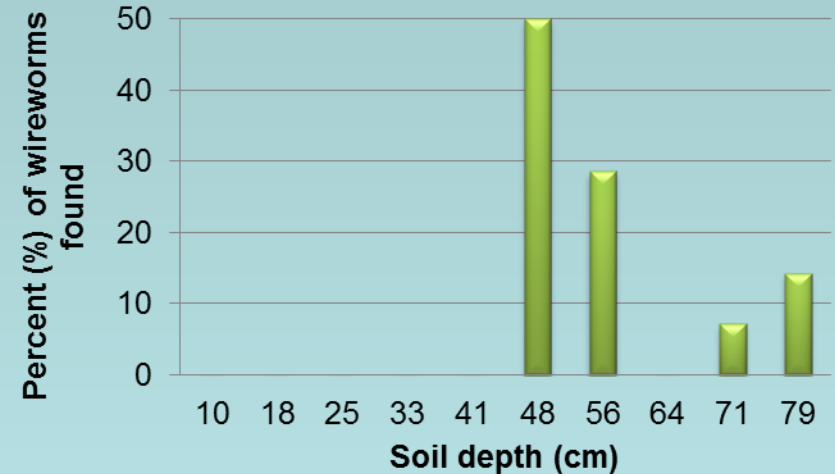
12 Dec 2017



18 Jan 2018



15 Feb 2018



Vertical movement of *A. sputator* wireworms



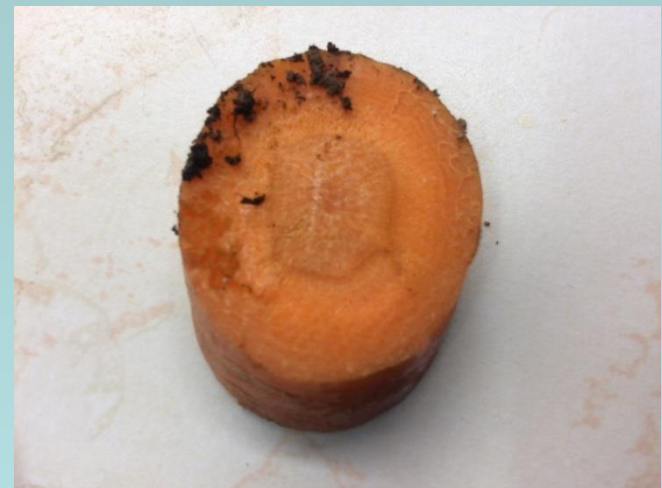
Feeding 2 days after collection in November



Feeding 2 days after collection in January



Feeding 2 days after collection in February



Feeding 2 days after collection in January

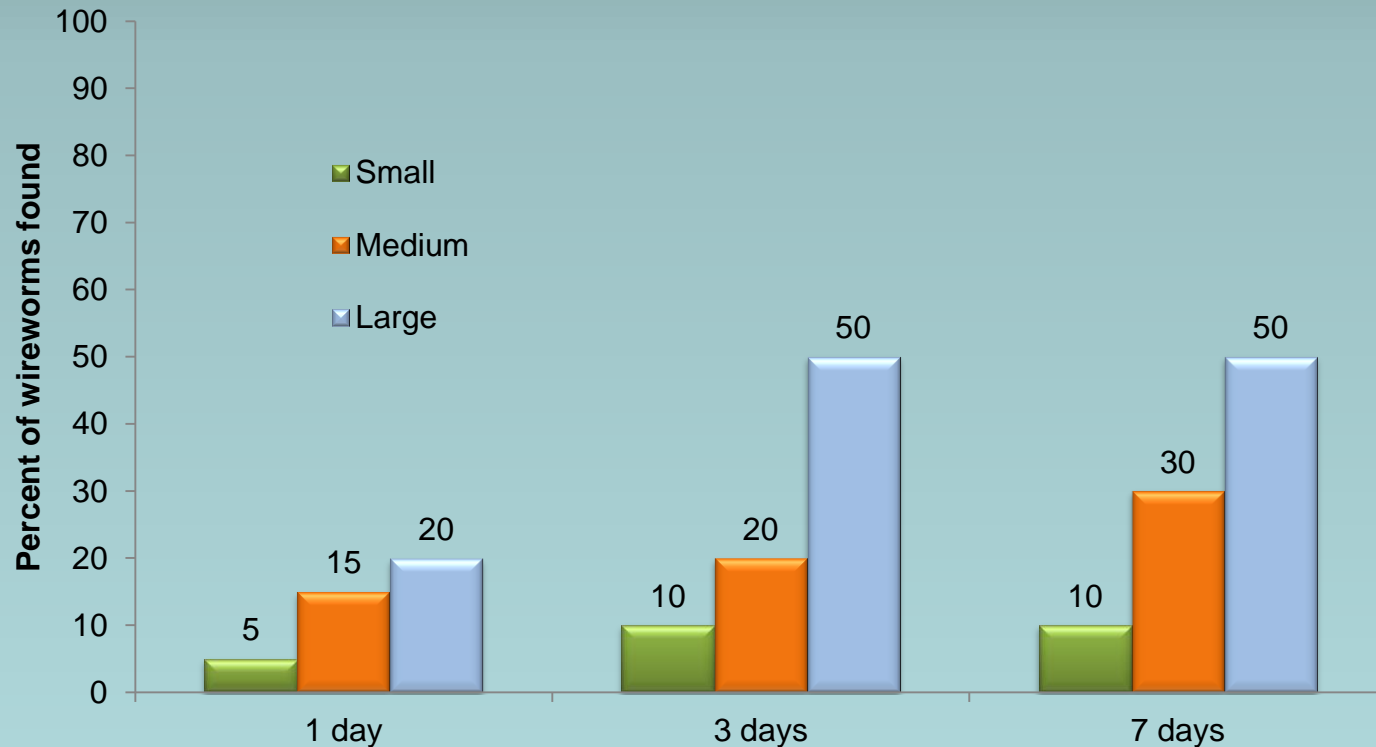
Horizontal movement of *A. sputator* wireworms



Wireworm release point

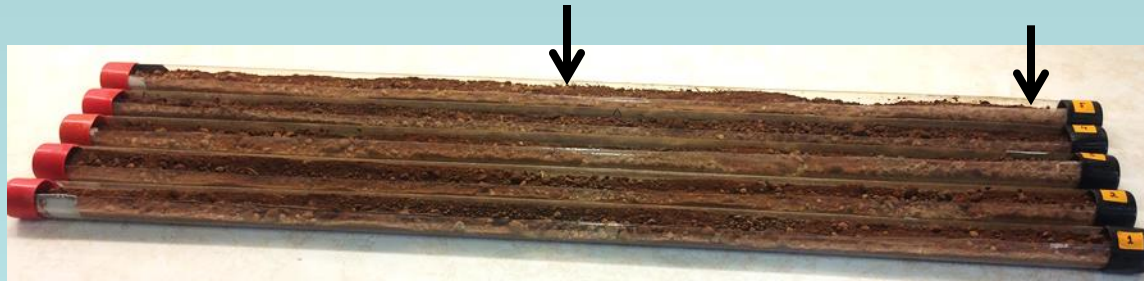
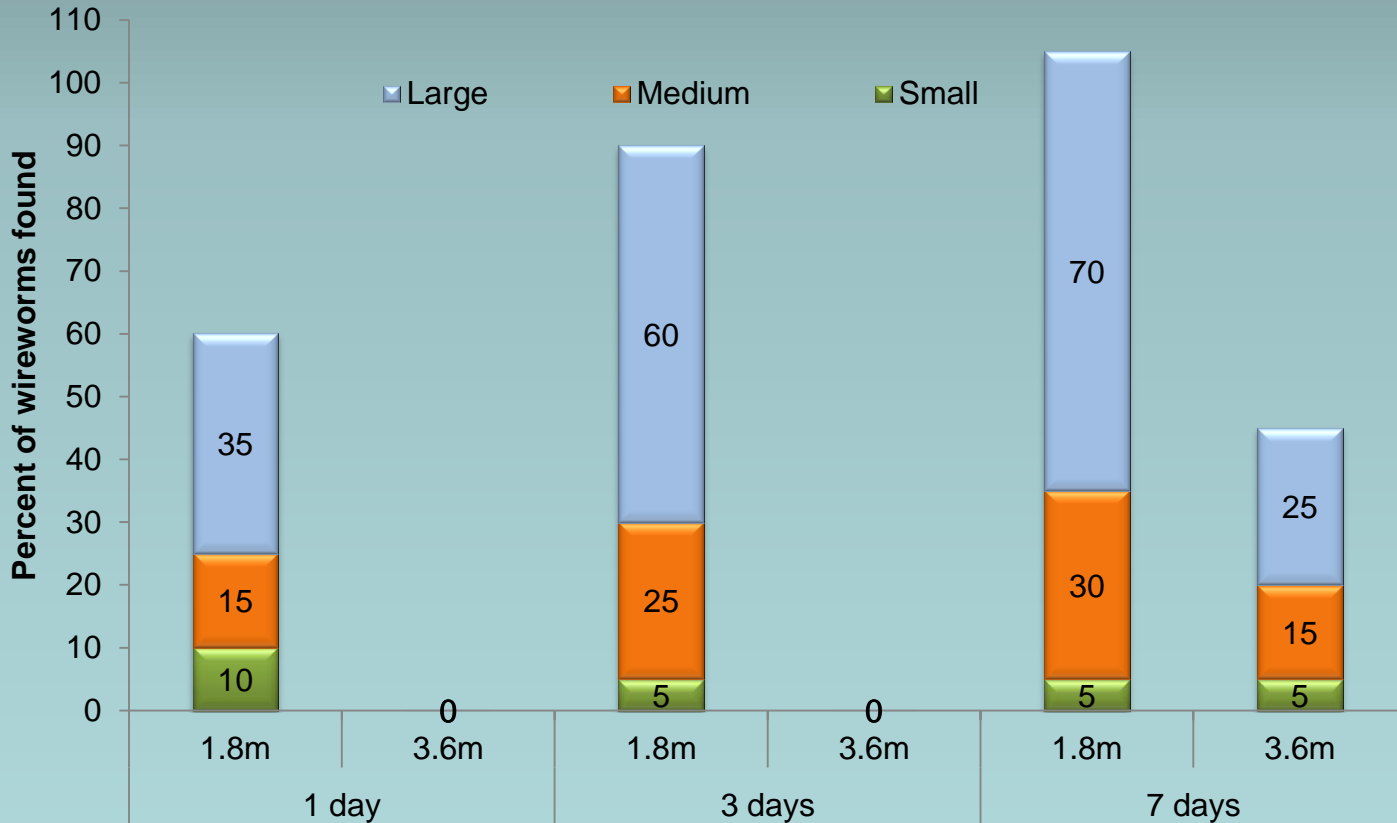
Horizontal movement of *A. sputator* wireworms

Carrot baits placed at 3.6m from the ww release point



Horizontal movement of *A. sputator* wireworms

Carrot baits placed at 1.8m & 3.6m from the ww release point

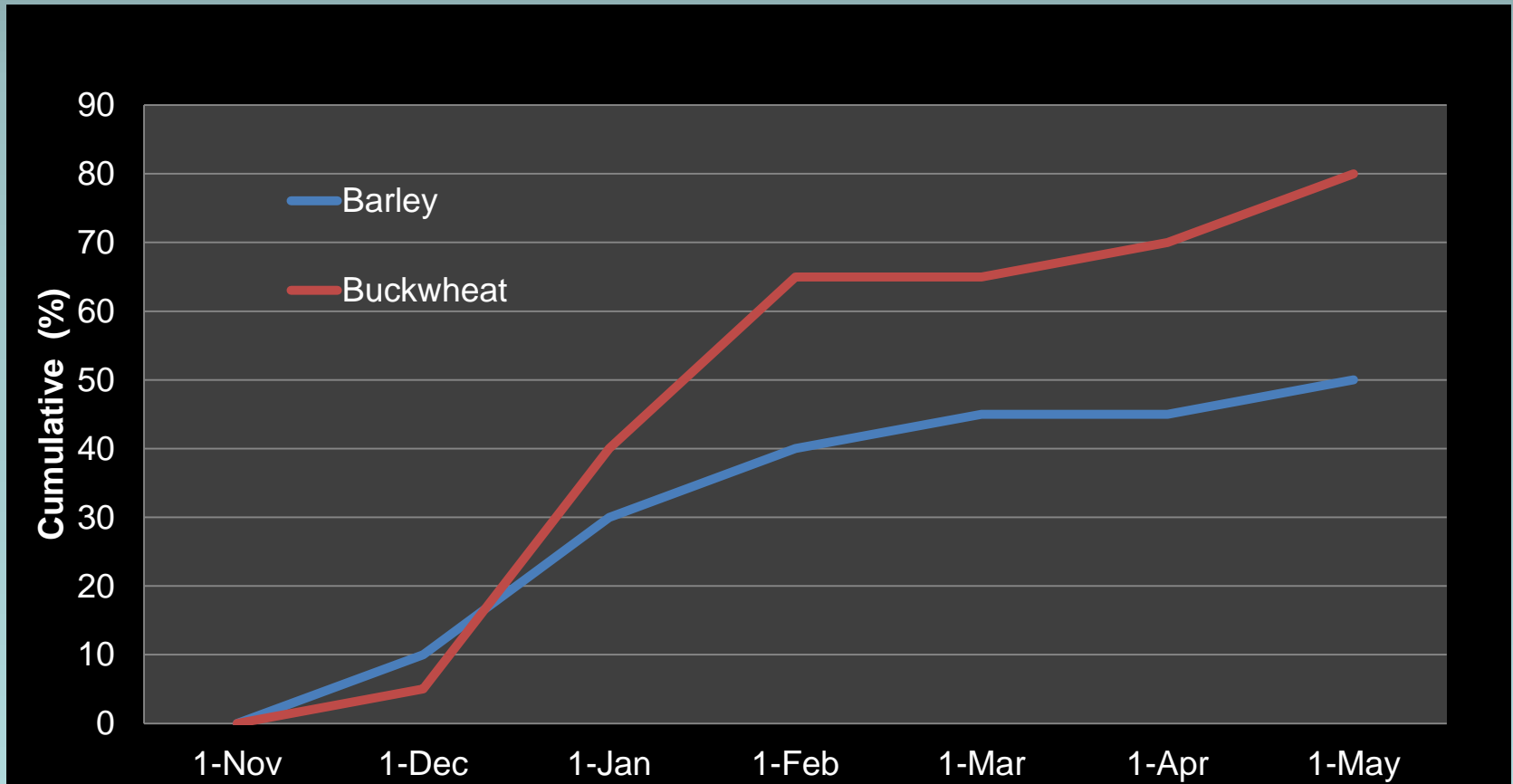


Laboratory feeding trials

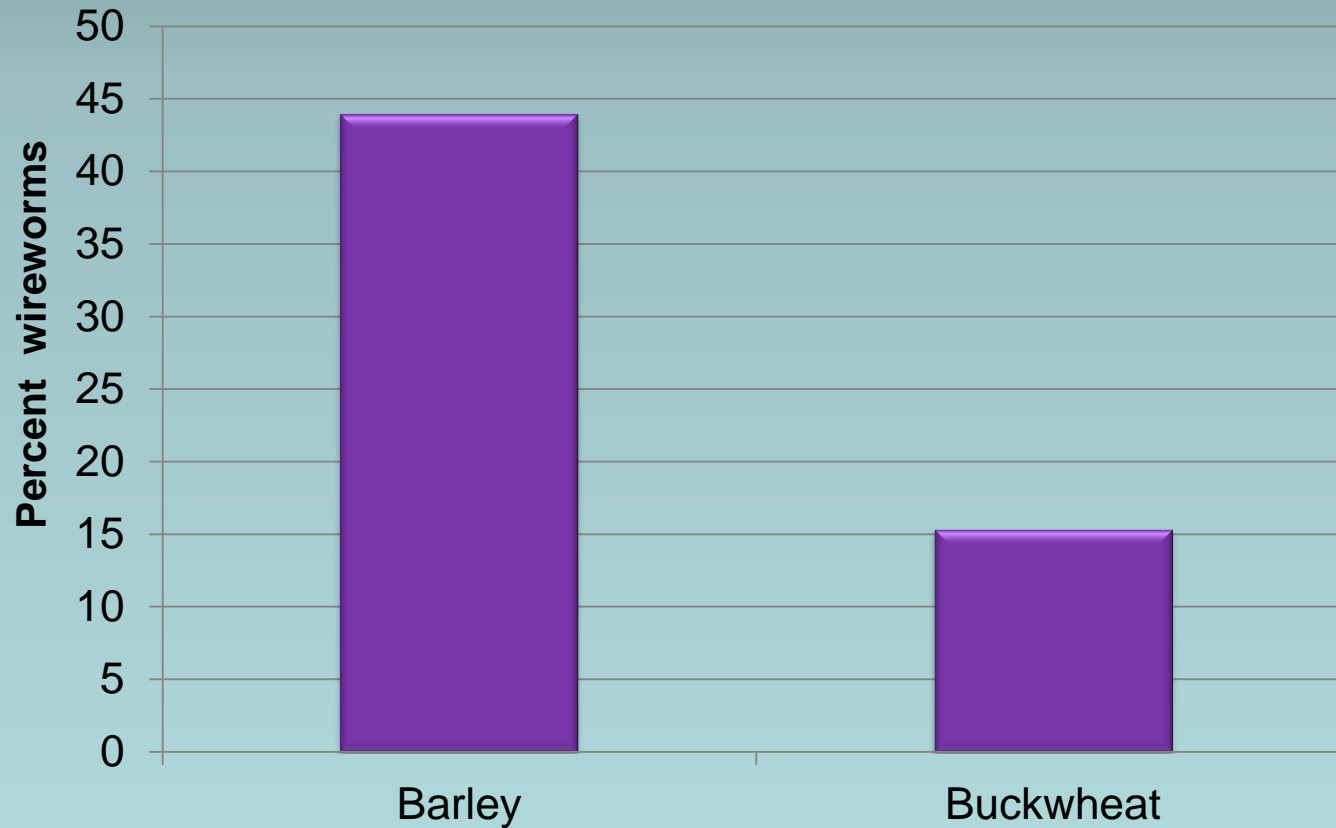
Does buckwheat kill wireworms



Percent mortality of medium sized wireworms feeding on barley or buckwheat



Survival of neonate wireworms fed with barley or buckwheat



Integrated management of wireworms in commercial potato fields

Tools available

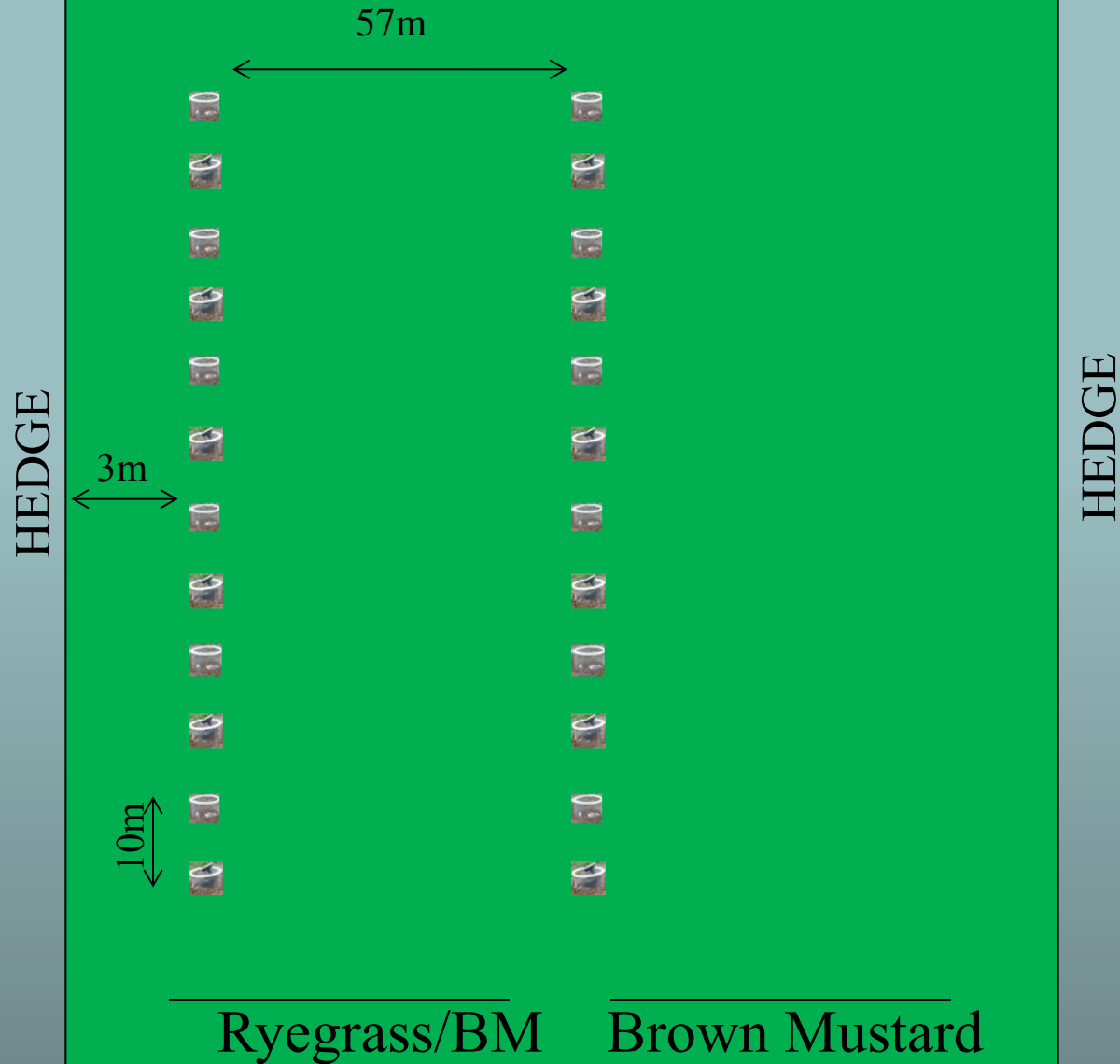
- Insecticides, rotation crops, monitoring for risk, and NELT

Requirements to test these tools

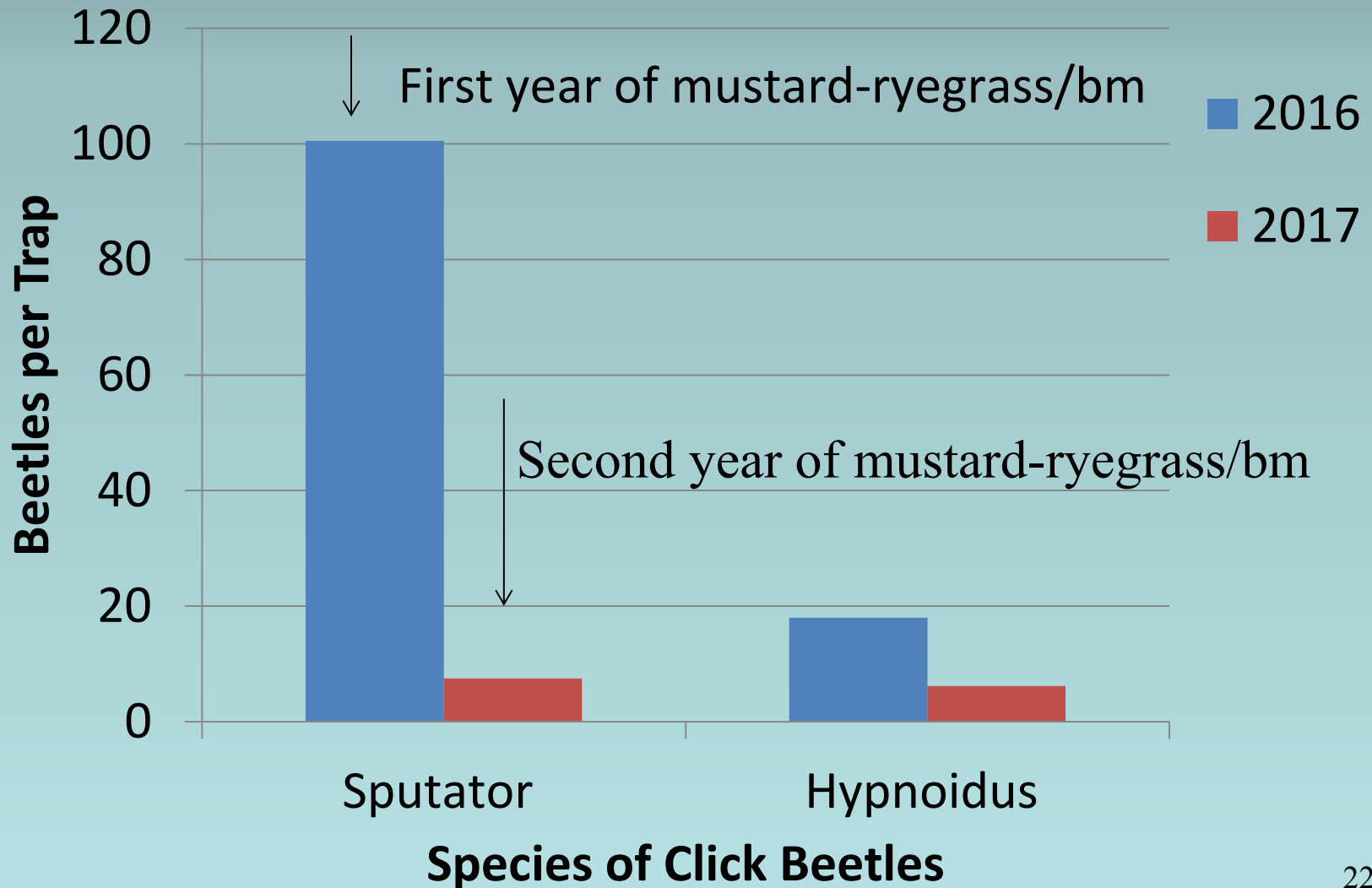
- A field with a known high population of wireworms
- A field that did not have mustard or buckwheat planted

Year	No. of blemishes / tuber
2013	10.96
2015	7.4

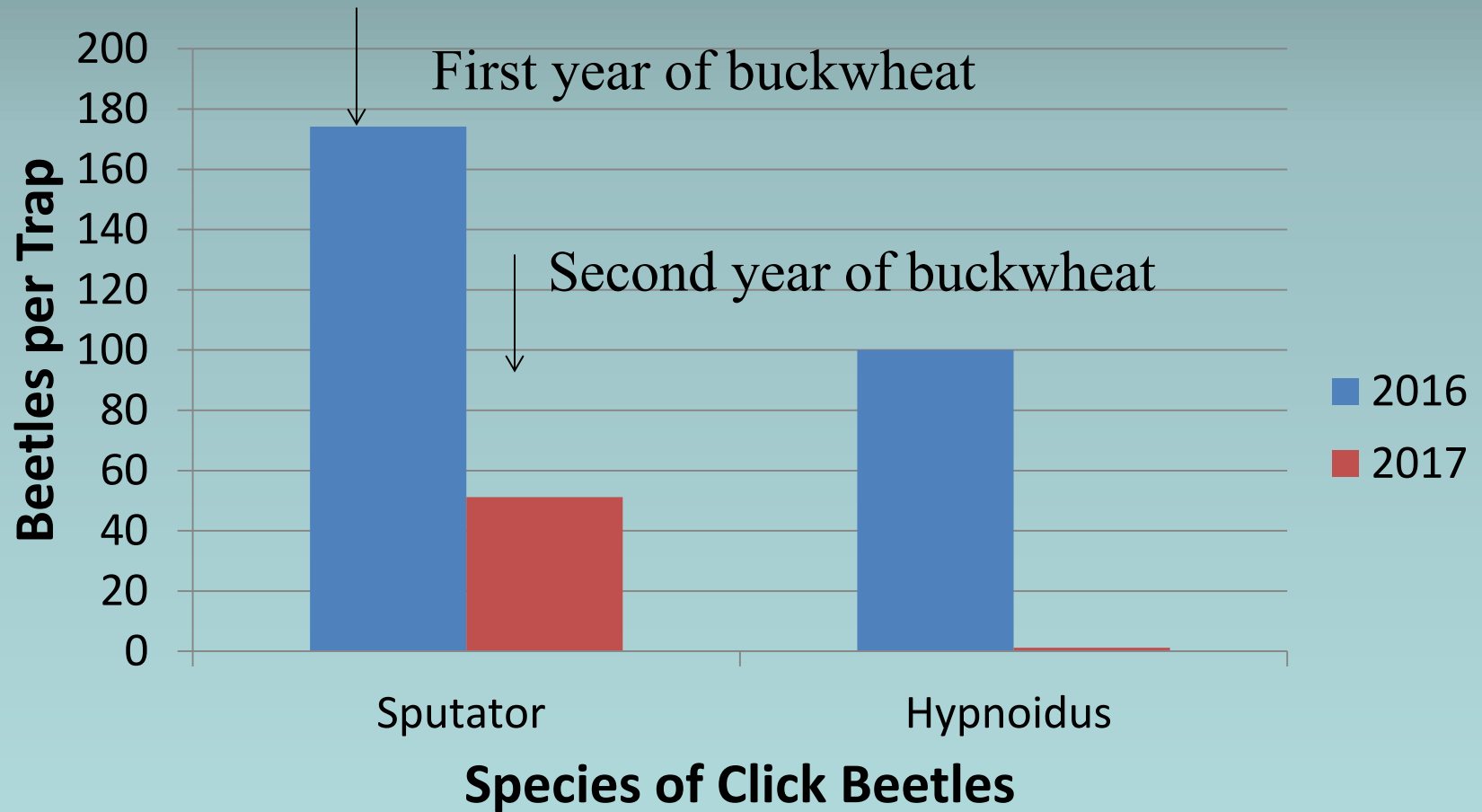
NELT's placed in 2016 -17 50ac



Number of beetles emerging in the spring of 2016 and 2017 . The field was planted to brown mustard and ryegrass/bm in 2016 and 17.



Click Beetles collected in a field In Harrington After One Year of Buckwheat



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