

Resistance monitoring in Sweden 2019 & 2020

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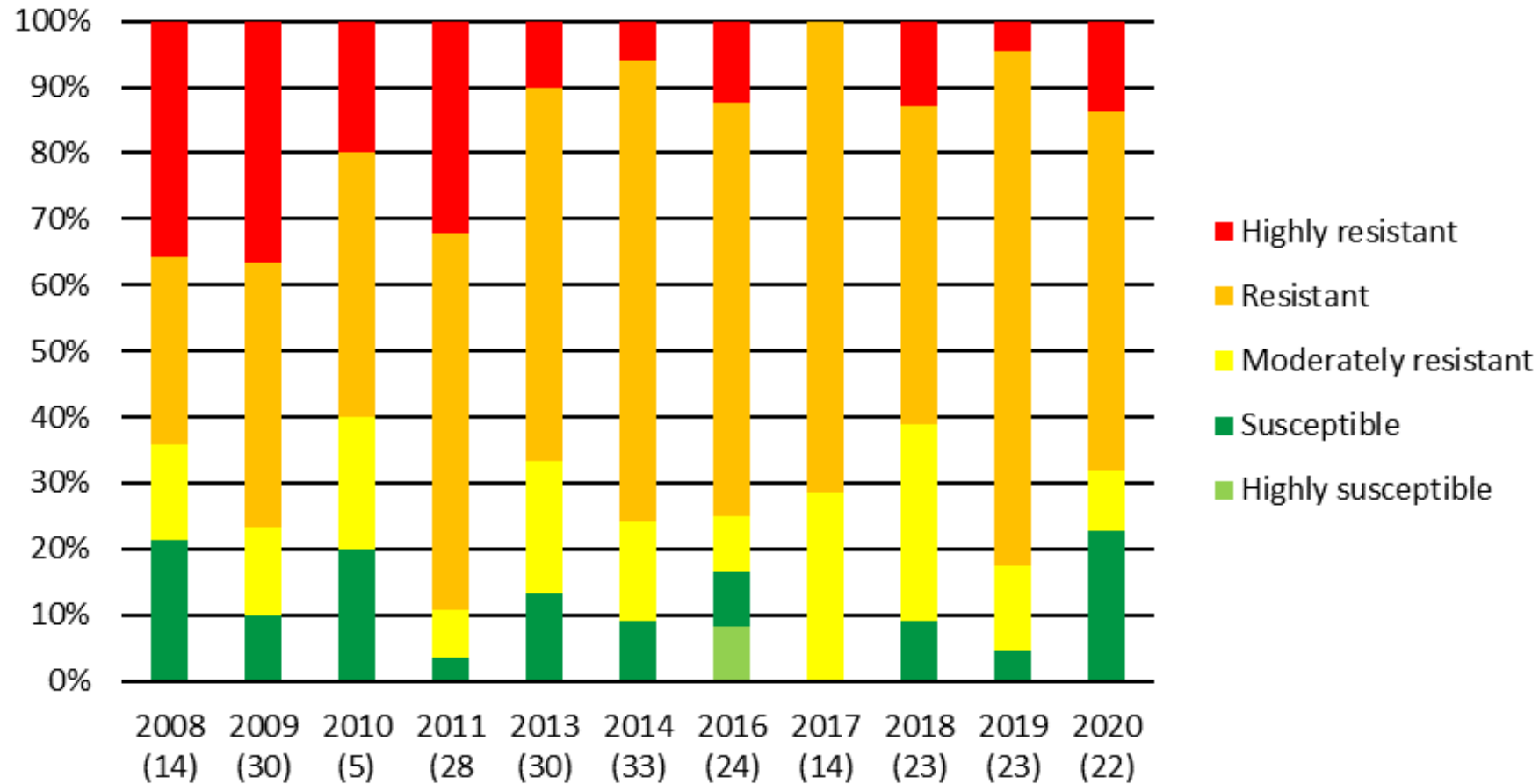
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Sampling & monitoring

- In total 20 odd sampling sites for pollen beetle, from various locations in Sweden
- Only a few of the samples are from spring oilseed rape (SOSR)
- Tested substances are lambda-cyhalothrin, tau-fluvalinate, thiacloprid (Biscaya) and acetamiprid
- Indoxacarb has been tested on a couple of targeted sites
- Very few sampling sites for cabbage seed weevil
- The project is shared between the Swedish University of Agricultural Sciences, the Swedish Board of Agriculture and a couple of companies
- On the spot project regarding diamond back moth in cabbage

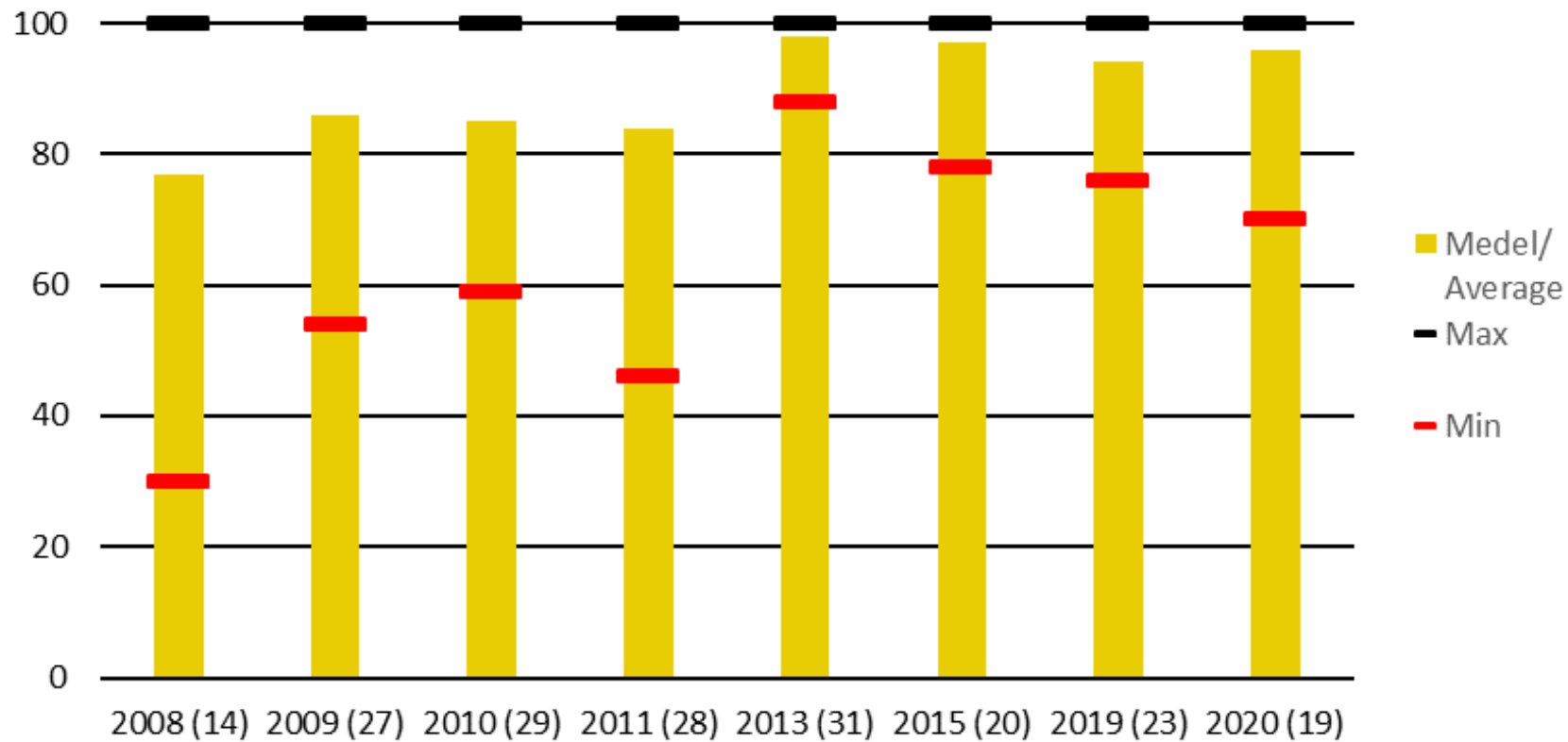


Changes in lambda-cyhalothrin susceptibility of pollen beetles (Karate)



Changes in tau-fluvalinate susceptibility of pollen beetles (Mavrik)

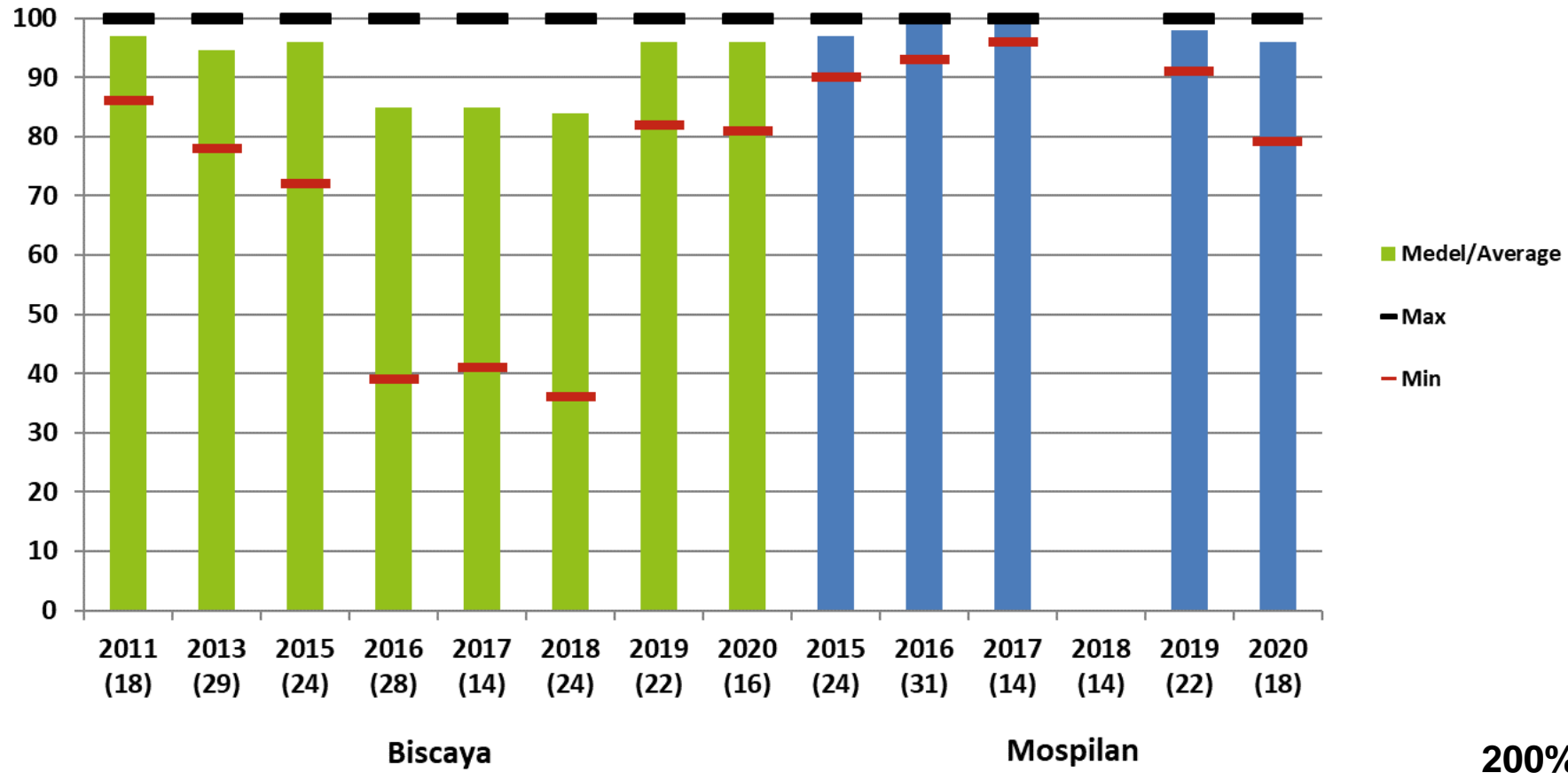
Mortality, %



100%-dose

Changes in neonicotinoid susceptibility of pollen beetles

Mortality, %



Conclusion

- Pollen beetles still have a persisting resistance to pyrethroids in spite of low use
- The sensitivity to tau-fluvalinate (Mavrik) is comparable to the results 2015, but the variation is increasing
- The variation in sensitivity to acetamiprid is increasing
- Fewer insecticides are registered which will increase the pressure on those remaining
- The populations of cabbage seed weevil has decreased significantly and the collection is time consuming, therefore the monitoring has been suspended

Insecticide groups in oilseed rape

Skadegörare	Pyrethroids Group 3	Neonicotinoids Group 4A	Indoxacarb Group 22A	Flonicamide Group 29
Cabbage stem flea beetle	X			
Turnip sawfly	X			
Turnip gall weevil	X			
Flea beetles	X			
Pollen beetle	X	X	X	
Cabbage stem weevil	X			
Cabbage seed weevil	X	X		
Grey cabbage aphid		X		
Diamondback moth	X			

Insekticide groups in cereals

Skadegörare	Pyrethroids Group 3	Neonicotinoids Group 4A	Indoxacarb Group 22A	Flonicamide Group 29
Frit fly	X			
Cereal leaf miners	X			
Straw fly	X			
Bird-cherry aphid	X			X
Grain aphid	X			X
Saddle gall midge	X			
Cereal leaf beetle	X			
Grain thrips	X			
Wheat blossom midge	X			
<i>Psammotettix striatus</i>	X			

A wide-angle photograph of a vast field of bright yellow flowers, likely rapeseed, stretching to the horizon. The sky is a clear blue with scattered white clouds. In the distance, a dark line of trees and a few small buildings are visible on the horizon.

**Thank you for your
attention!**