Forschungsinstitut für biologischen Landbau FiBL
info.suisse@fibl.org, www.fibl.org

Versuchszentrum
Centro di Sperimentazione
Research Centre
LAIMBURG



Testing the effect of a rainproof protection net on the apple production regarding disease and pest damages

Clémence Boutry[1], Markus Kelderer[2], Thomas Holtz[2], Fabian Baumgartner[1], Michael Friedli[1]

[1]Research Institute of Organic Agriculture (FiBL), Ackerstrasse 113, 5070 Frick, Switzerland, clemence.boutry@fibl.org

[2]Institute for Fruit Growing and Viticulture, Research Centre Laimburg, 39051 Pfatten, Italy, markus.kelderer@laimburg.it

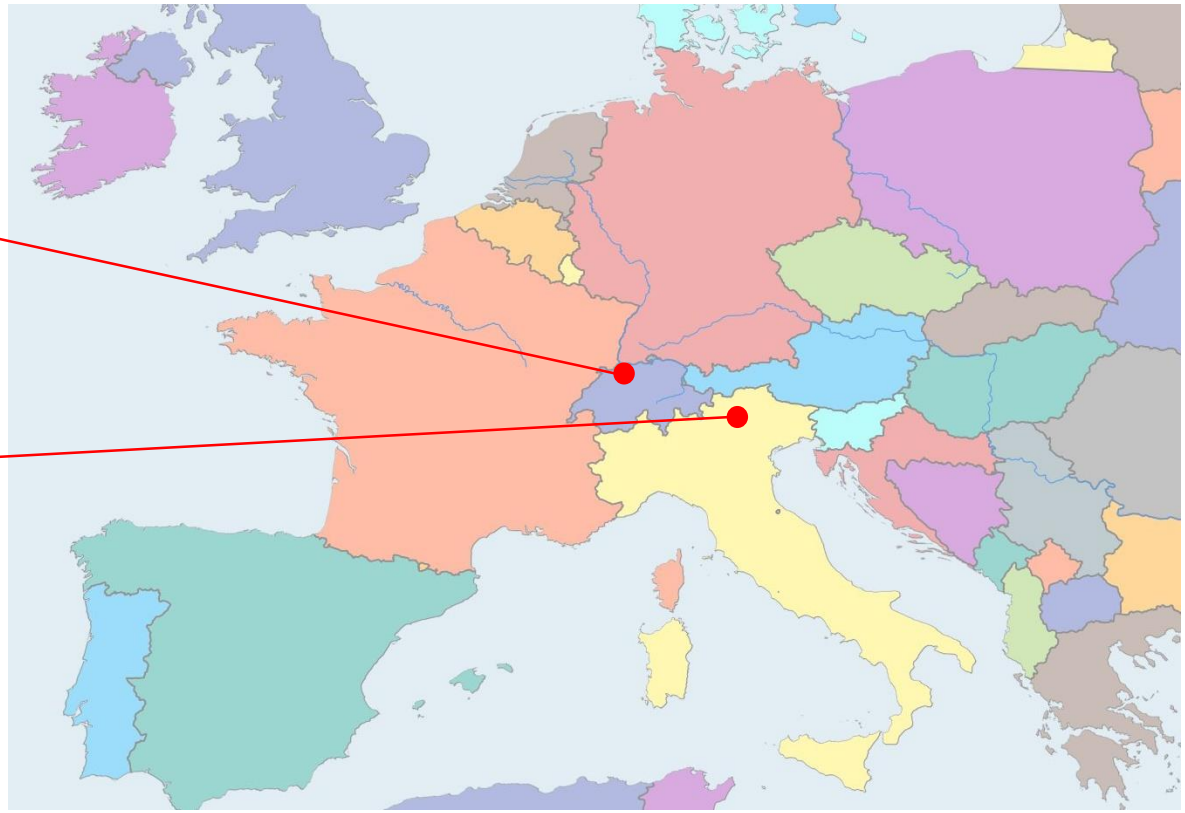
Ecofruit conference, online, 22 February 2022

CORE organic

The trials (2019-2021)

FiBL

Versuchszentrum
Centro di Sperimentazione
Research Centre
LAIMBURG



Sheltered Apple Production

Keep in touch: on the ground vs. above ground

Sheltered Apple Production

No protection
(control)

Protection
(Keep in touch)

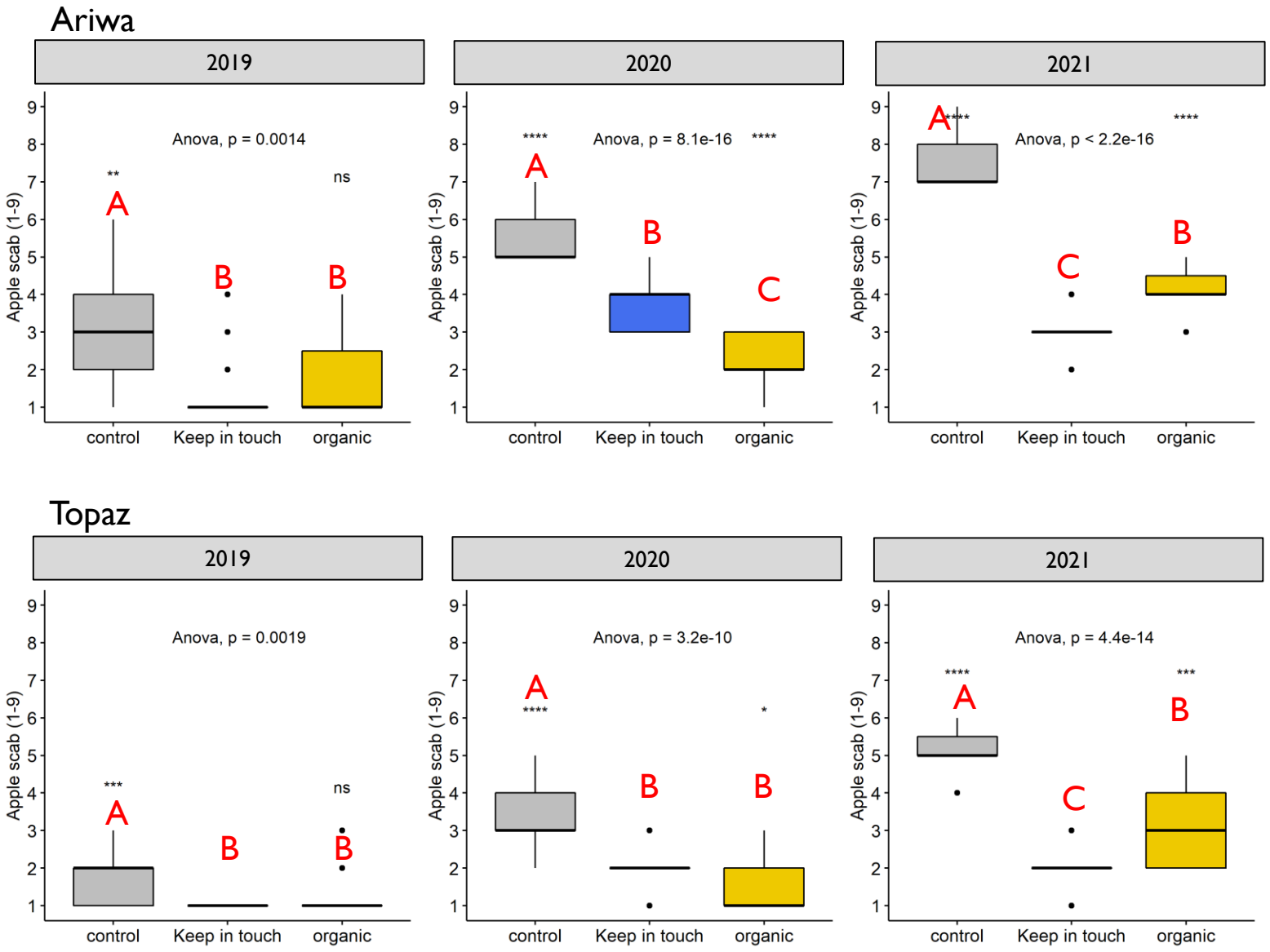
No protection
(standard organic)

No plant protection

With plant protection

Apple scab and powdery mildew

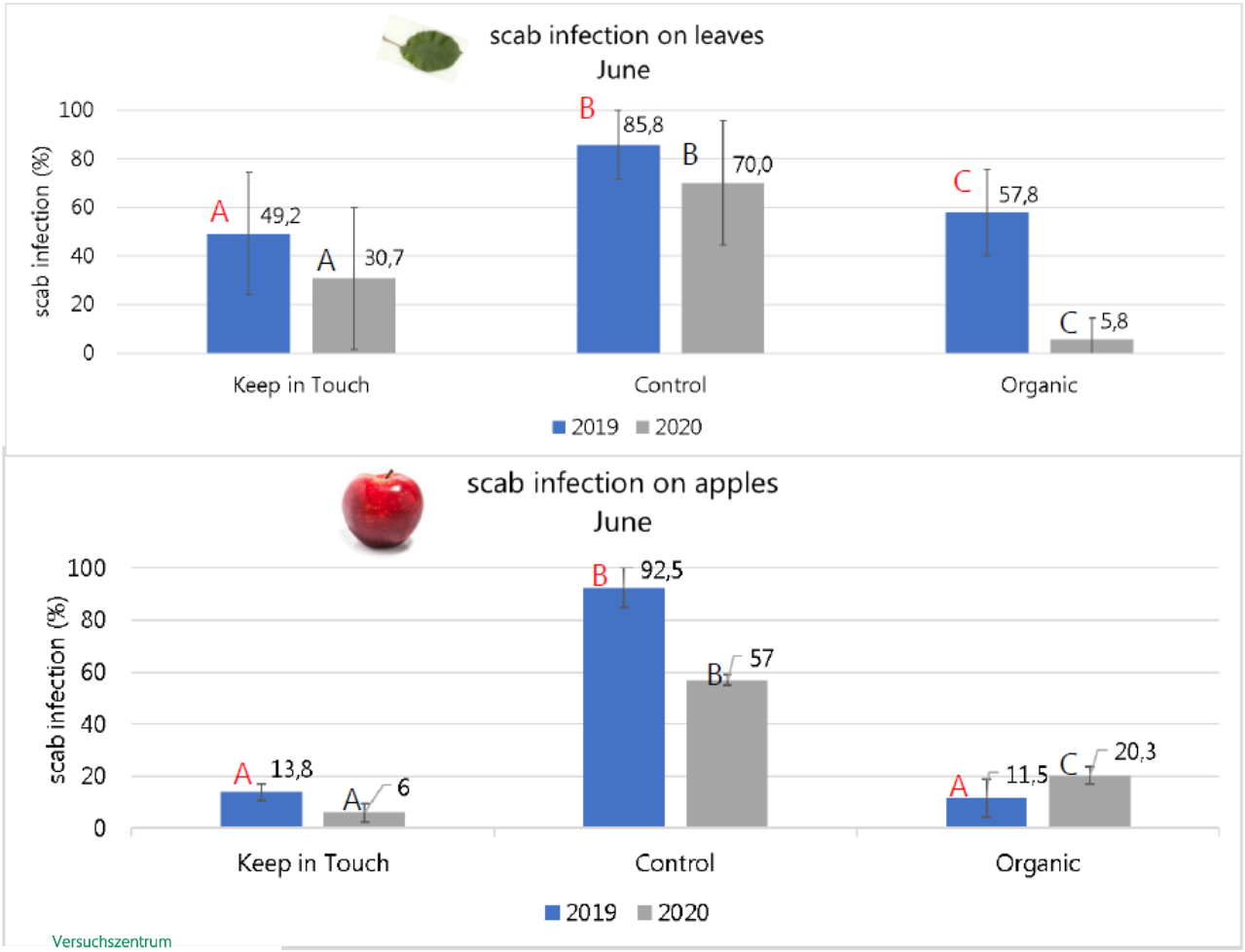
Apple scab: comparable or lower than «organic»



Apple scab: comparable or lower than «organic»

Gala

Scab infection on leaves and fruits 2019-2020

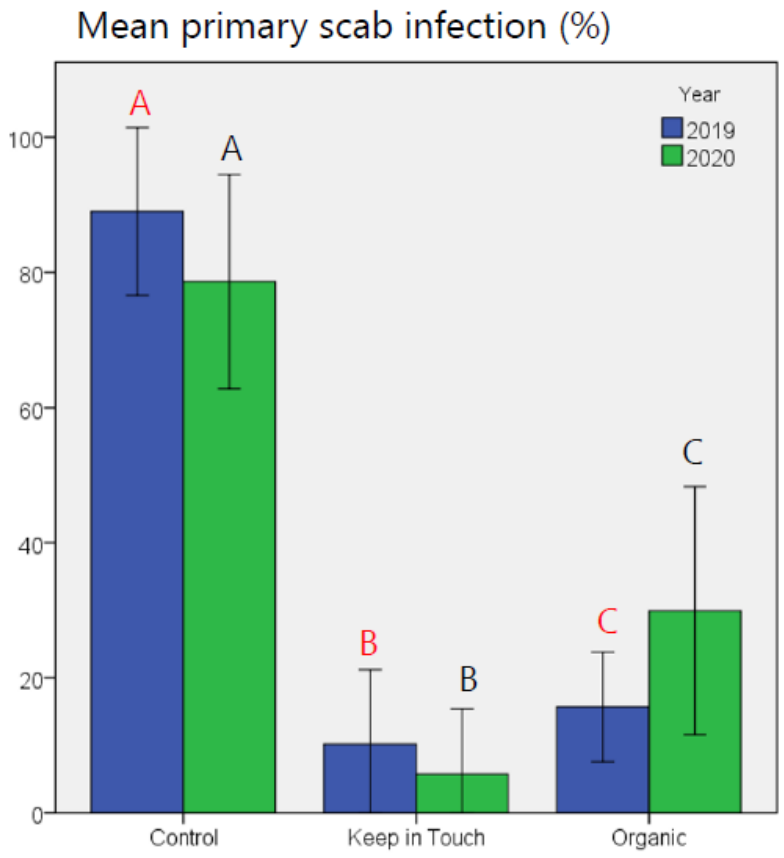


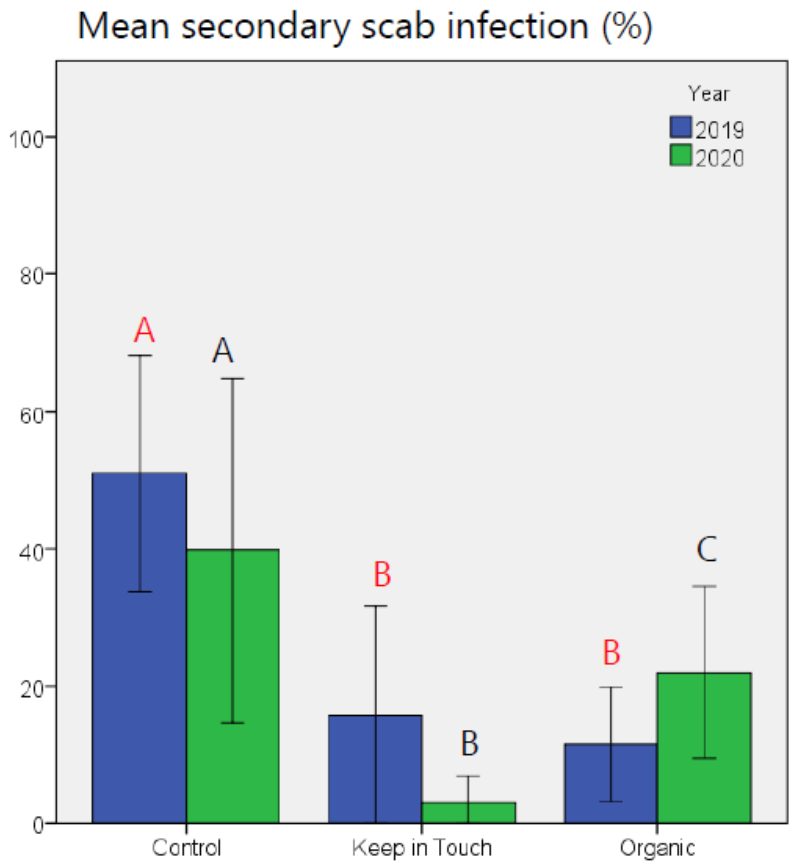
Versuchszentrum
Centro di Sperimentazione
Research Centre
LAIMBURG

CORE organic

Lower primary and secondary scab infections

Gala





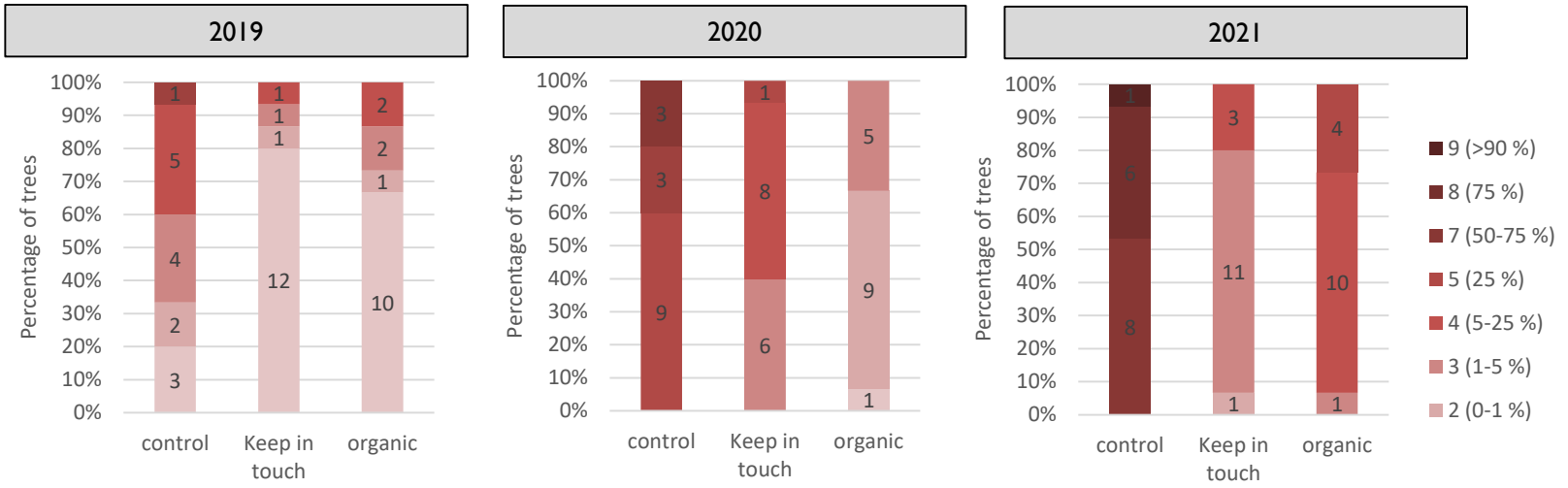
Keep in touch: scab infections mostly in the lower part of the trees

Versuchszentrum
Centro di Sperimentazione
Research Centre
LAIMBURG

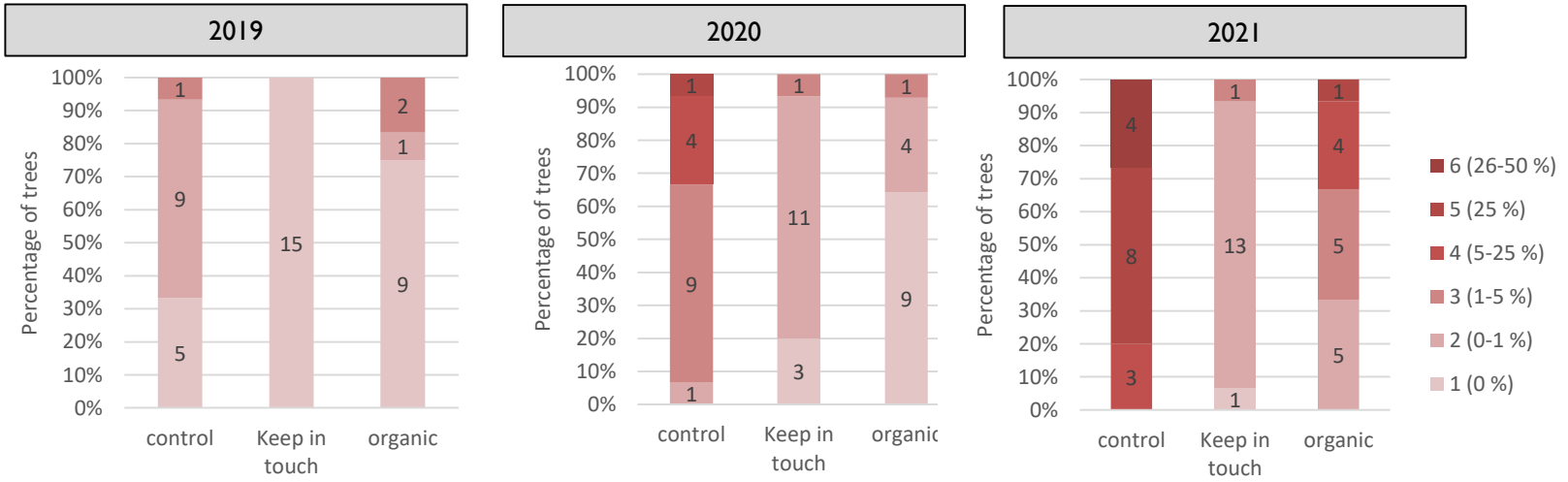
CORE organic

Apple scab: building up over time, even under the KT

Ariwa



Topaz



Keep in touch - Symptoms

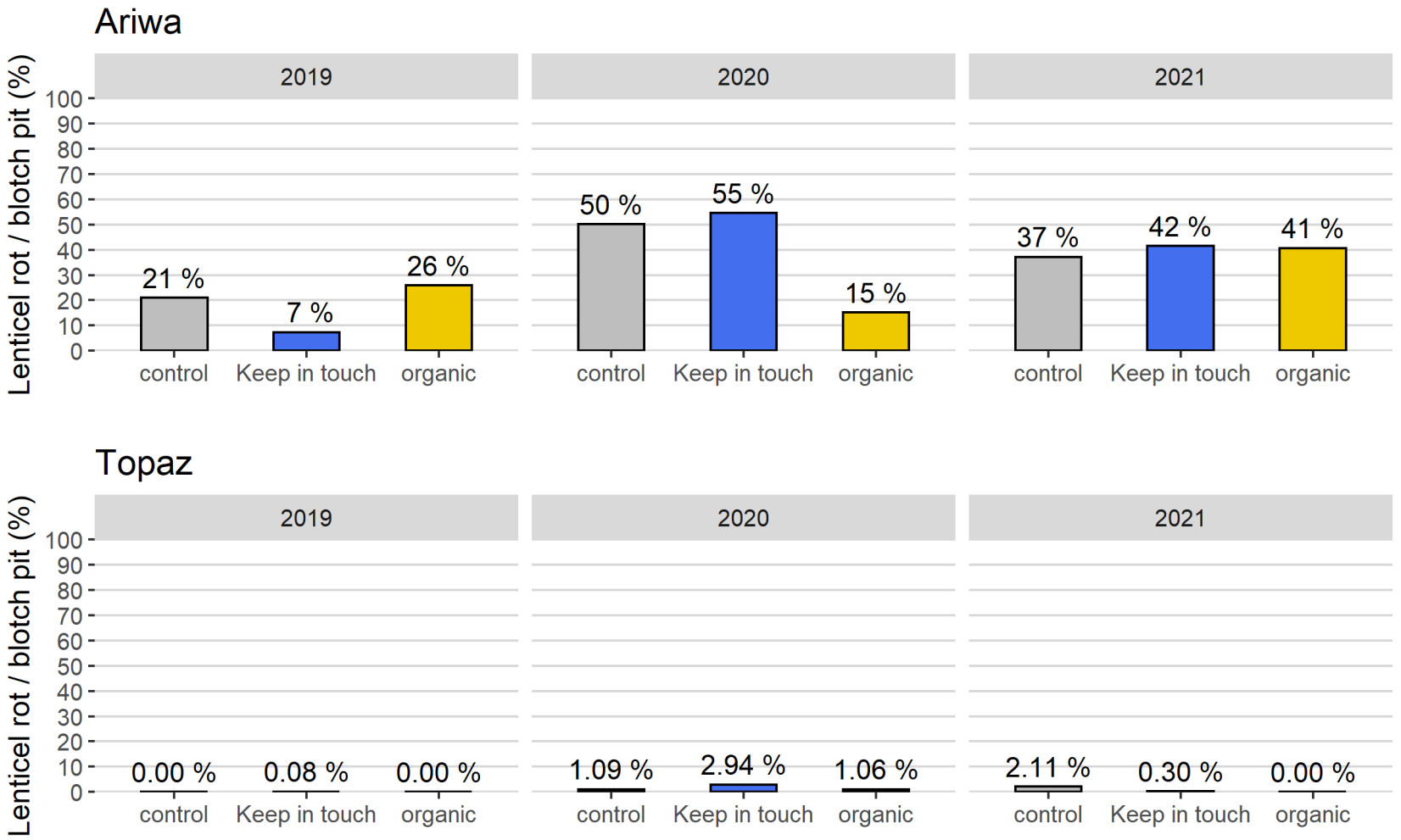
Lenticel rot?
Bitter pit?
Lenticel breakdown?

At harvest

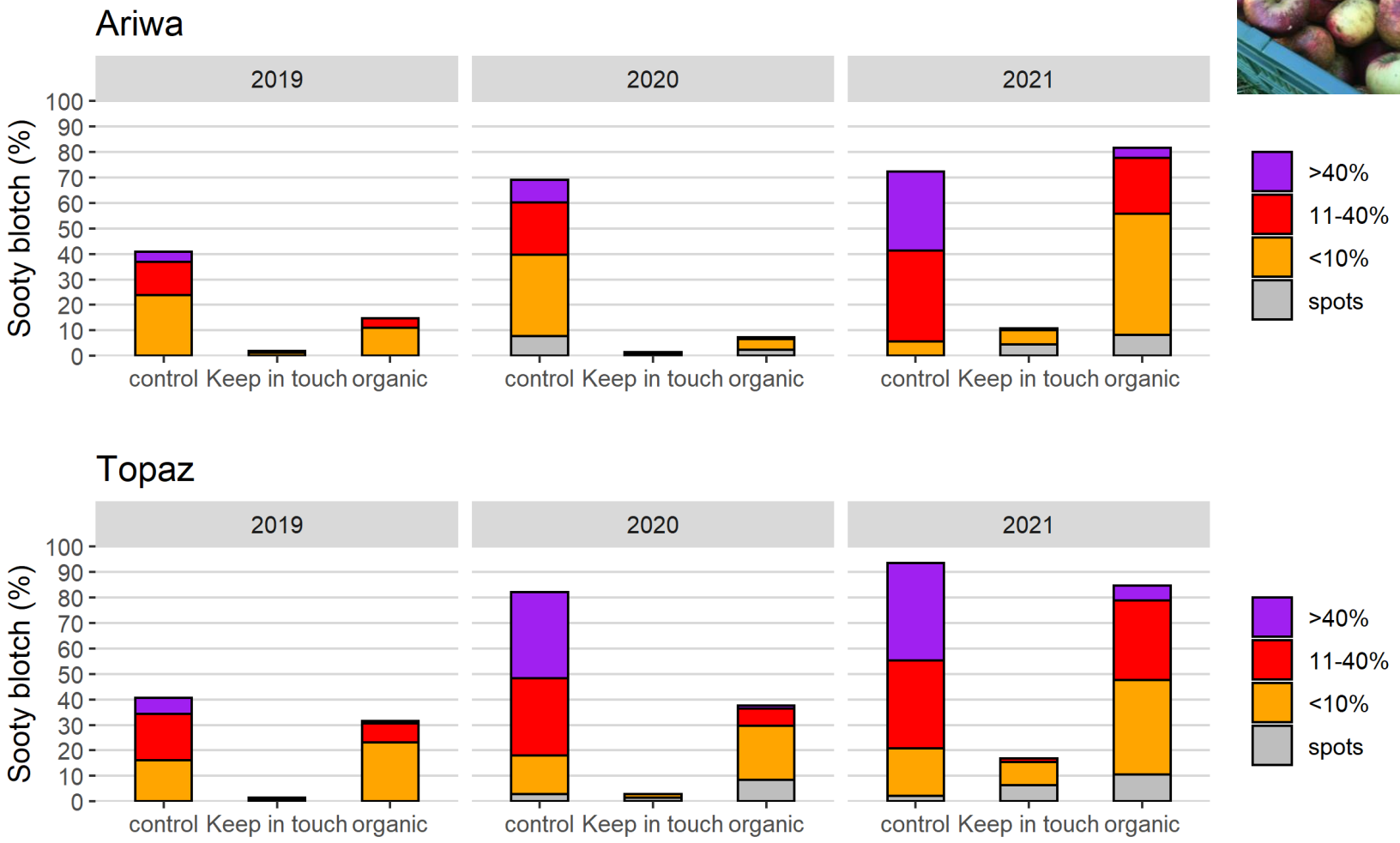
Lenticel blotch pit!
(physiological disorder)

After 4 months of storage at 1°C

Reduced lenticel rot but increased lenticel blotch pit

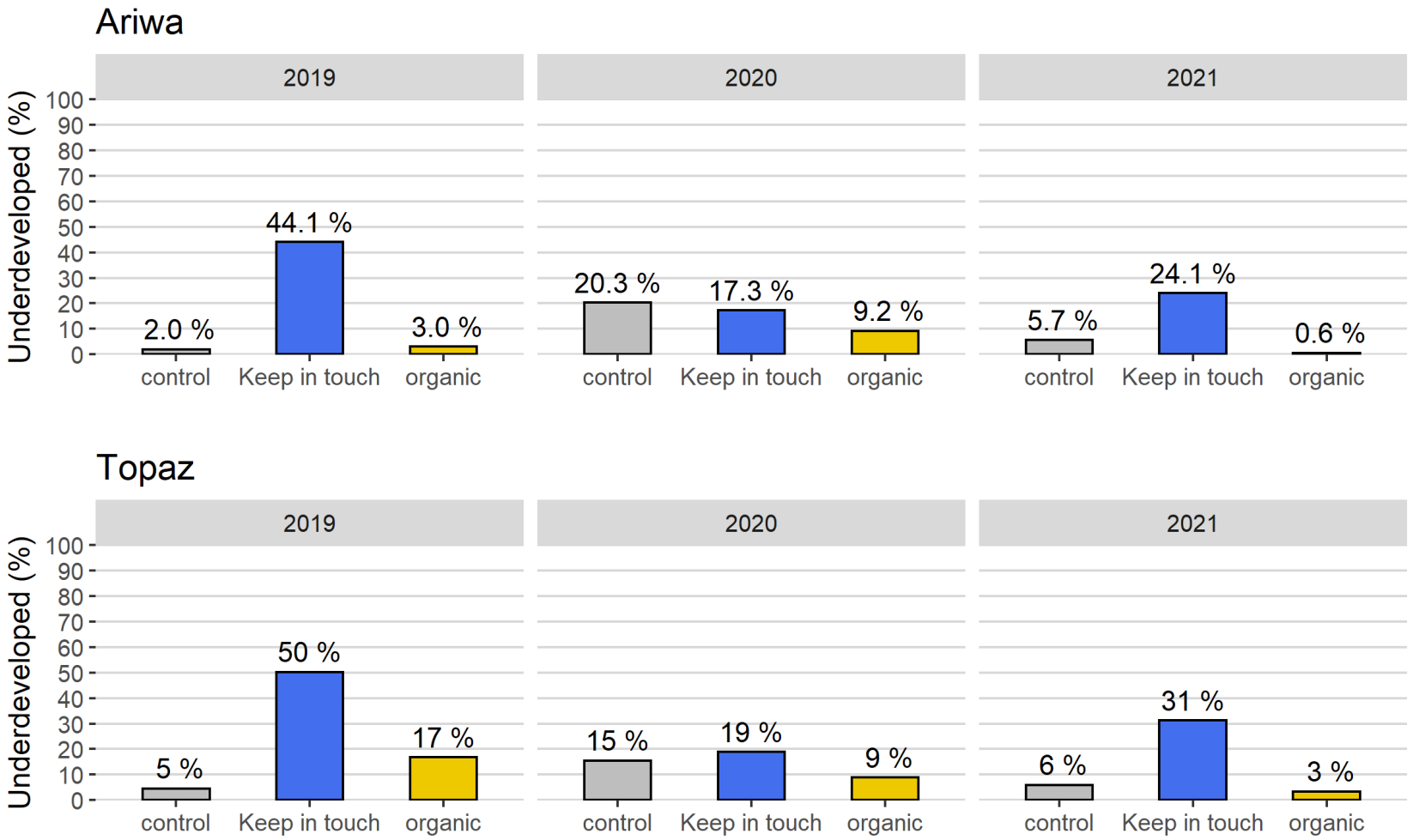


Sooty blotch at harvest



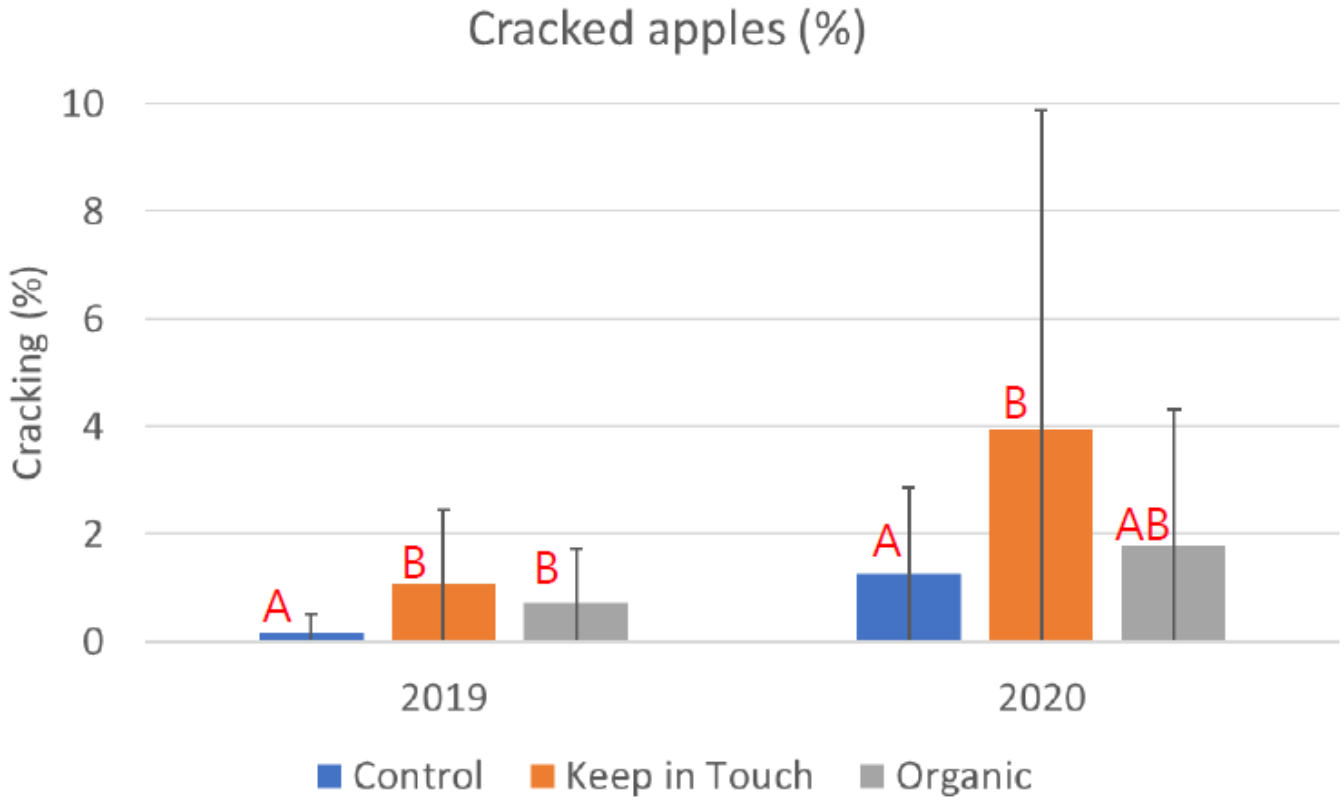
Sooty blotch reduced, but overcolour as well…

More underdeveloped fruits



More craqued fruits

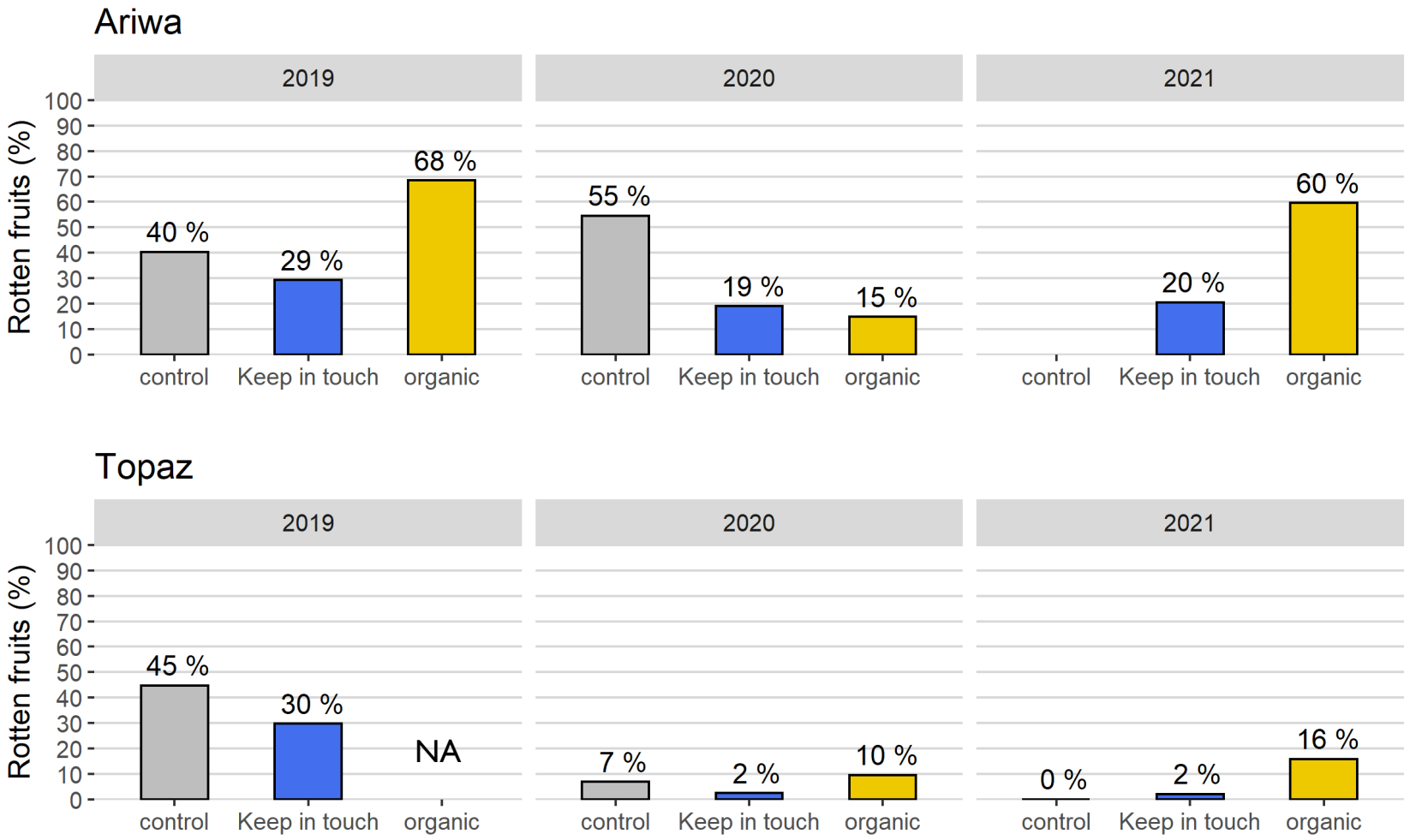
Gala



Versuchszentrum
Centro di Sperimentazione
Research Centre
LAIMBURG

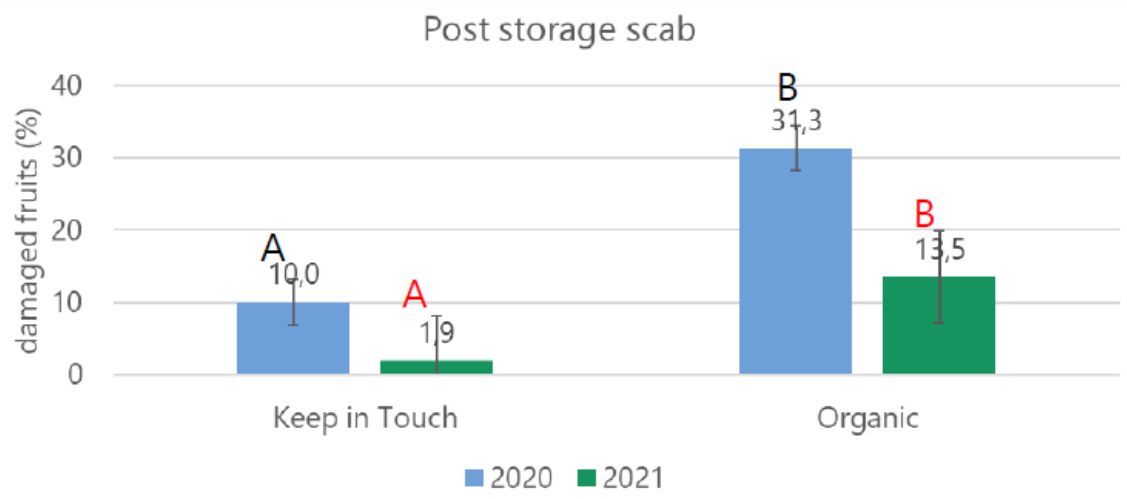
CORE organic

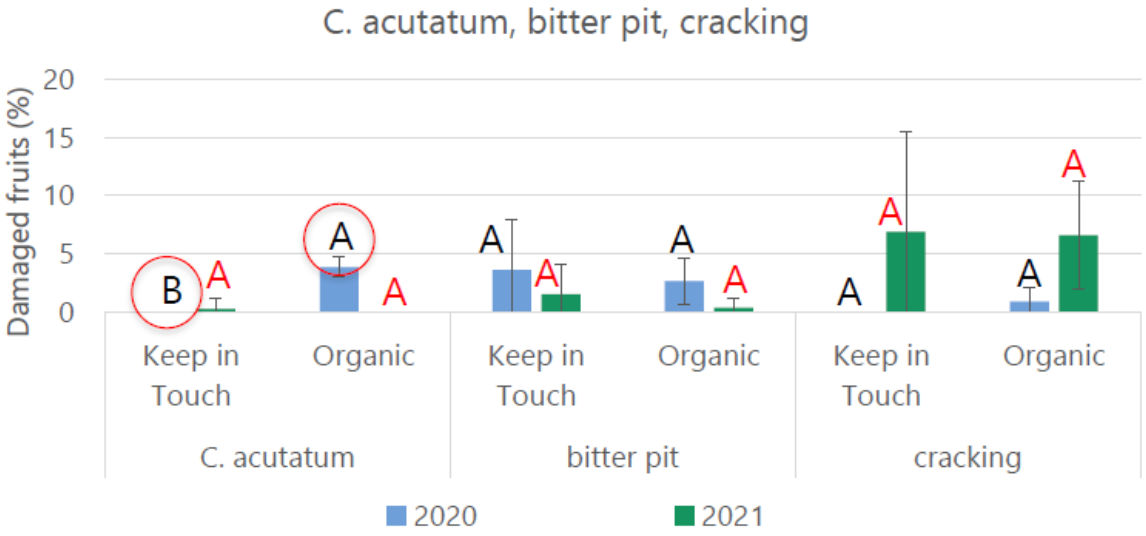
Post storage evaluation (4 months)



Post storage evaluation (4 months)

Gala



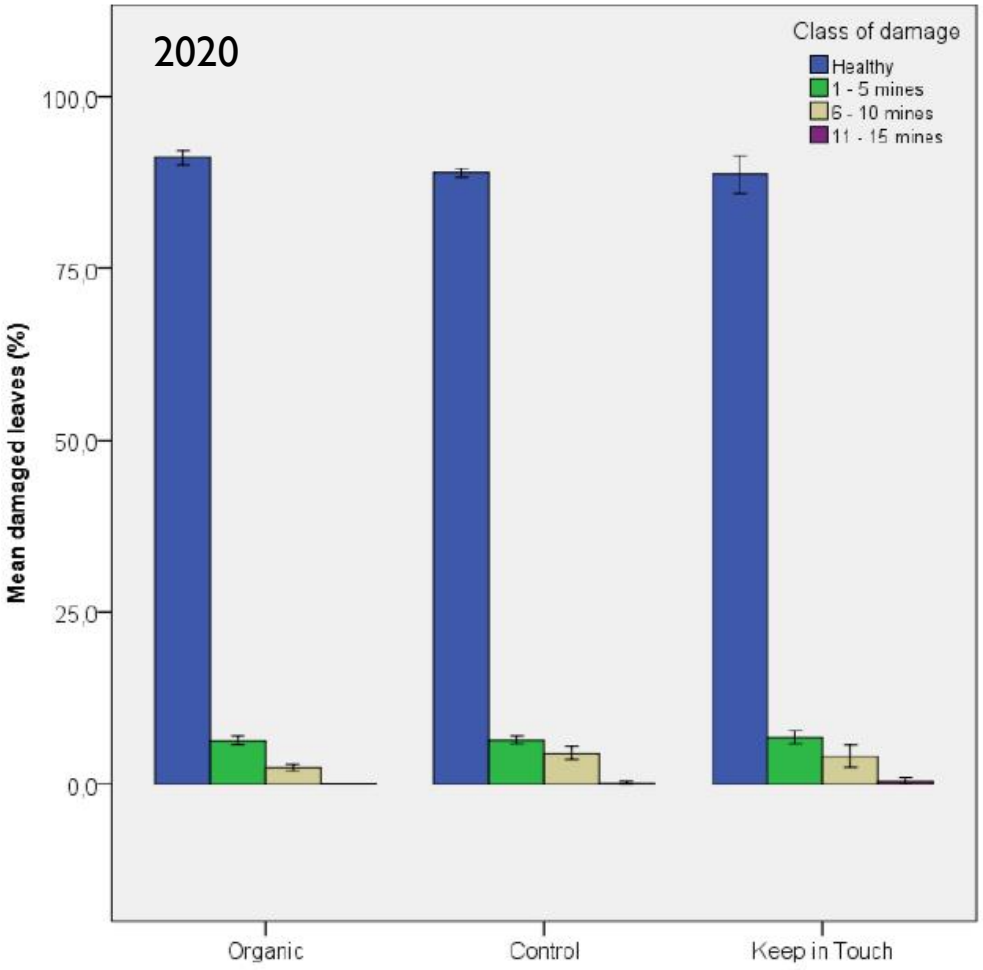


Versuchszentrum
Centro di Sperimentazione
Research Centre
LAIMBURG

CORE organic

Insect damage on leaves

Gala

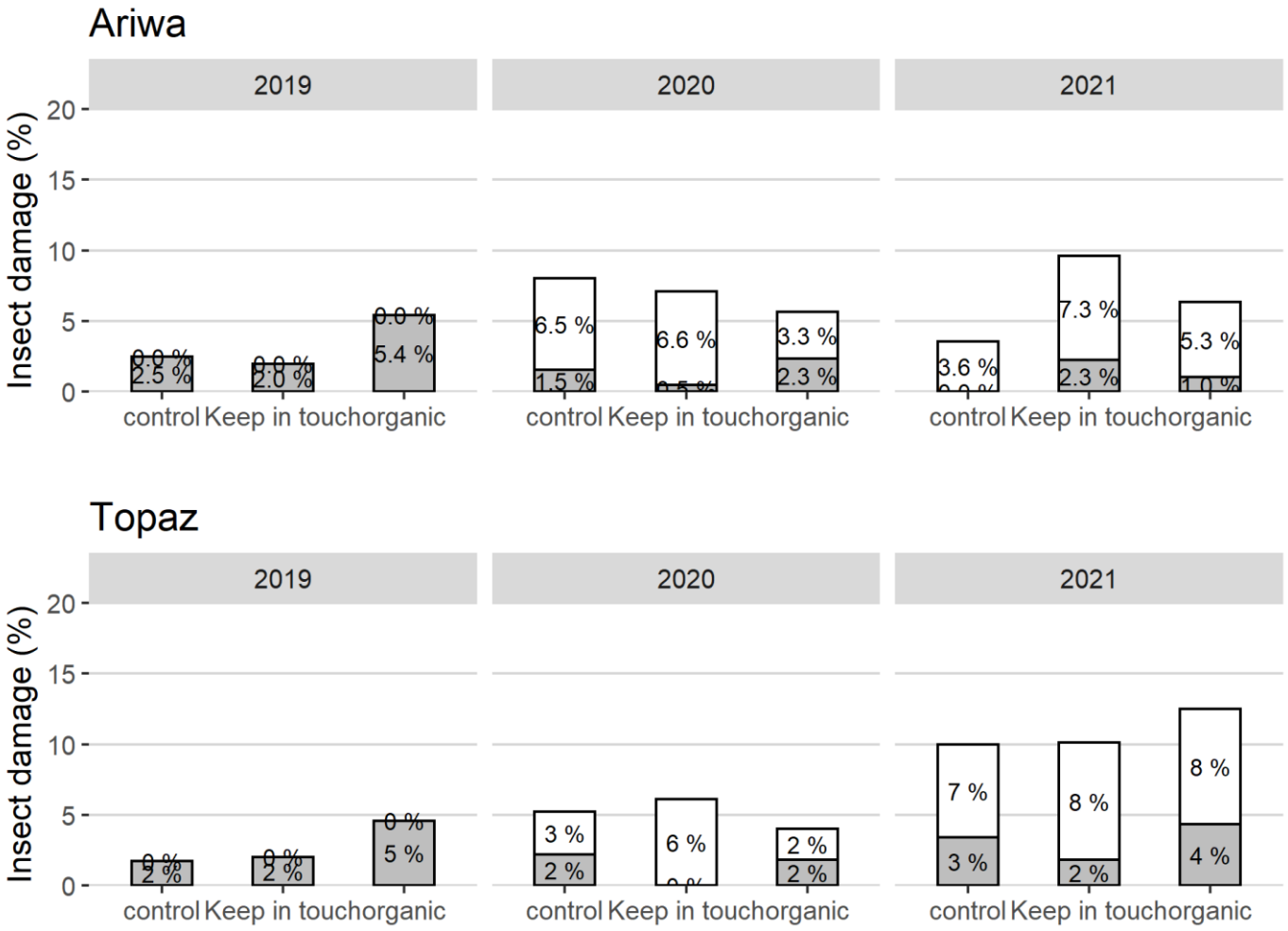


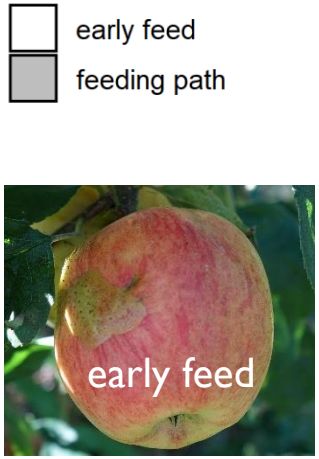
Versuchszentrum
Centro di Sperimentazione
Research Centre
LAIMBURG

CORE organic

Insect damage on fruits

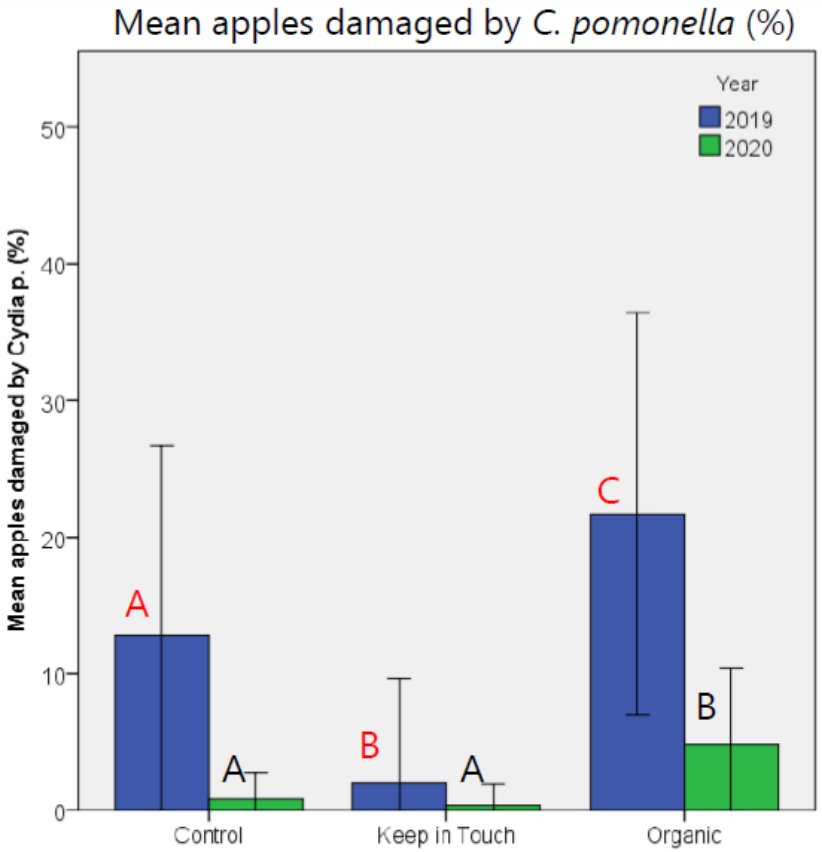
(*) early feed not assessed in 2019

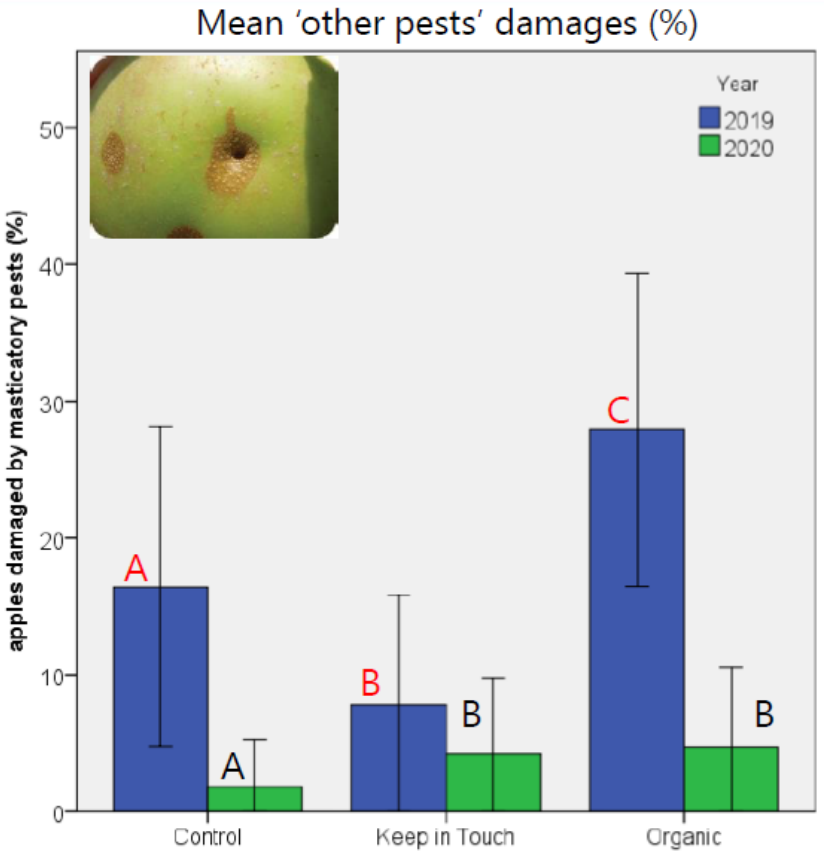




Insect damage on fruits

Gala





Versuchszentrum
Centro di Sperimentazione
Research Centre
LAIMBURG

CORE organic

Woolly apple aphid

Rosy apple aphid

Conclusions

Pros/ promising	Cons/ didn't work

• Important reduction of plant protection products applied
• Good control of apple scab (but not 100%)
• Less fruits with fungal infections at harvest (sooty blotch, lenticel rot)
• Reduced post-storage losses (storage scab)
• Less insect-feeding damage
	• Woolly apple aphid
	• Powdery mildew
	• More physiological disorders (bitter pit, craqued, underdeveloped)
	• Less overcolour
	• Workload
	  • Open/close the net
	  • Re-open the net for fruit thinning
	  • Soil management more difficult (net closed on the ground)
	• Plastic
	  • Footprint
	  • Aestethic problem

Thank you for your attention