

Does comfrey promote growth and fruit production of saskatoon and berry and black currant?



Farmer-Researchers

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Project Timeline: May 2017 - Sep 2020

In A Nutshell

Perennial cover crops have many ecological benefits. However, they may compete with the crop or not provide sufficient weed control.

Key Findings

- After 3 years at Pat's and 2 years at Ivan's, comfrey had no effect on fruit production or saskatoon and currant health.
- Comfrey was a vigorous living mulch without causing detectable negative effects on fruit production.

METHODS

Perennial cover crops like comfrey (*Symphytum spp.*; Figure 1) provide ecological benefits including:

- **Nutrient accumulation:** Bringing immobile nutrients to the soil surface
- **Microclimate:** Moderating soil temperature and moisture
- **Mulch:** Competing with and suppressing weeds while accumulating biomass to feed the soil biology
- **Biodiversity:** Adding plant diversity and promoting beneficial insects

There is also concern, however, that they compete for nutrients and space, or provide insufficient weed control.



Design

To investigate the effect of comfrey on saskatoon and black currant, Pat planted **saskatoon bushes** (*Amelanchier alnifolia*) in 2005 and Ivan planted **currant bushes** (*Ribes nigrum*) in 2014 and 2015.

They randomly assigned groups of bushes to:

- Comfrey companion plants *or*
- No comfrey control

Table 1

Experimental design at Pat and Ivan's farms

	Pat	Ivan
Design	4 reps x 2 trt with 4-7 bushes each = 42 sask. total	3 reps x 2 trt with 4-6 bushes each = 28 currant total
Control management	Mostly grass with no comfrey; no other fertilizer.	Tarp for weed control; no other fertilizer.
Years	2017-2019	2018-2020

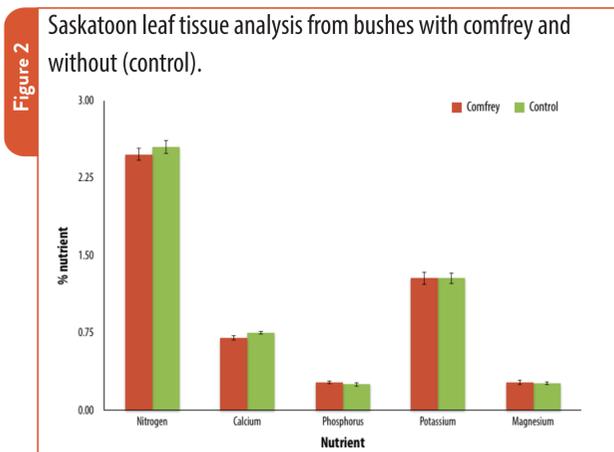
RESULTS

Shrub growth and health

In 2017 when Pat planted the comfrey, she did not detect a boost in growth for saskatoon shrubs with comfrey as a companion (1).

In 2018, Pat also found no statistical or practical difference between saskatoon shrubs planted with and without comfrey with respect to height of tallest shrub branch and number of new shoots (2).

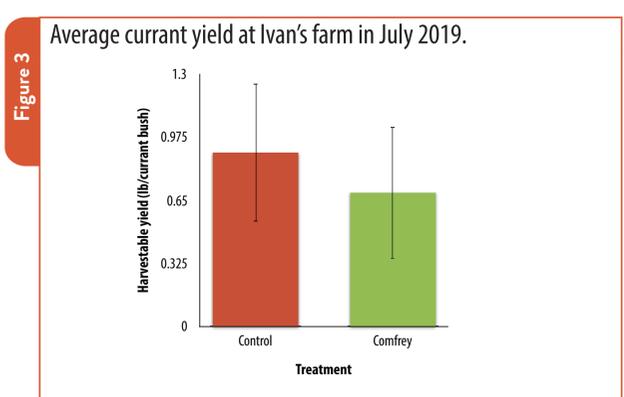
In June 2019, Pat took leaf samples from saskatoon bushes (200+ grams from each set of replicate bushes) and sent them to SGS Laboratories for leaf tissue analysis. She found no difference in calcium, phosphorus, potassium or magnesium between saskatoon bushes planted with and without a comfrey companion (Figure 1; $P > 0.18$ for all). For nitrogen, she found slightly higher values for saskatoon without comfrey ($P = 0.05$), but the difference was small and not practically significant (Figure 2).



Fruit production and quality

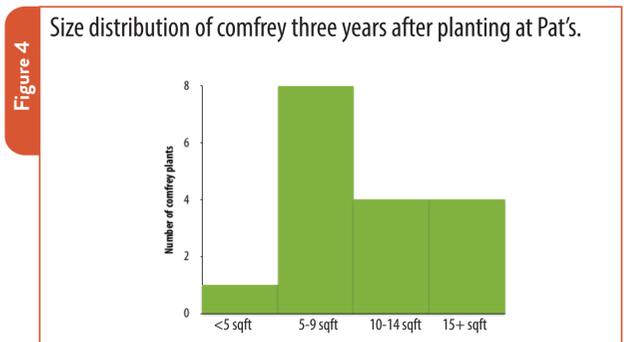
In 2018, Pat found no statistical or practical difference in sugar content (Brix) of the fruit or harvestable yield (2). Similarly in 2019, Pat found no difference in Brix between saskatoon with and without a comfrey companion ($P = 0.67$; data not shown).

In 2018, Ivan collected baseline data. In 2019, he recorded harvestable yield from currants planted with and without comfrey and detected no statistical or practical difference between them (Figure 3; $P = 0.69$).



Comfrey growth

Impressed by the amazing growth of comfrey, Pat measured it in 2019. After three years, her comfrey plants averaged 10 square feet of "mulch potential" (Figure 4)



TAKE HOME MESSAGE

After three years of planting comfrey at Pat's farm and two years at Ivan's, they detected no positive effect on saskatoon/currant growth, health or fruit production. Comfrey may not be a true "companion"; or benefits from nutrient accumulation may take longer to manifest as detectable; or benefits to the fruit shrubs may be factors other than those measured.

On the flipside, comfrey was a good weed suppressor and they detected no negative effect from comfrey, even with its impressive size. Competition for nutrients or light should be more immediately apparent, and this data suggests that comfrey did not outcompete saskatoon.

REFERENCES

1. Kozowyk. 2017. Research Report. <https://efao.ca/wp-content/uploads/saskatooncompanion-kozowyk-report2017-1517939758-1.pdf>
2. Kozowyk, Churchyard and Chan. 2018. Research Report. <https://efao.ca/researchDocs/comfreysaskatooncurrant-kozowyk-chan-churchyard-efao2018-1548809807.pdf>

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THANKS TO OUR PROJECT FUNDERS

