

# Cover Crops, Double Crops, and Cost Considerations

The use of cover crops can result in multiple environmental and soil health benefits, further sustainable intensification by utilizing those cover crops in a double cropping system may provide an additional economic benefit to dairies.



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The green fields of the winter dairy landscape may include a variety of cover crops like cereal rye, triticale as well as some brassicas or mixtures of crops. Selection of the type of cover crop used depends on the purpose for the crop and the soil types and climate for the dairy. Benefits of cover crops are important to farm sustainability. Cover crops may improve soil health, suppress weeds, prevent soil erosion, break pest cycles, improve uptake of nutrients from manure and improve water availability in the soil.(1)

While the use of cover crops can result in multiple environmental and soil health benefits, further sustainable intensification by utilizing those cover crops in a double cropping system may provide an additional economic benefit to dairies resulting from more high-quality forage from the same land base. Double cropping with small grain silages like rye, wheat, oats and triticale can be a balance act between higher forage yields and higher forage quality. Depending on the need for forage on the dairy, higher forage quality is the aim for inclusion in lactating cow rations. If higher amounts of forage are what is needed, then declining forage quality with maturity may result in more lower quality feed more suitable for other animal groups. With these double cropping systems, harvesting in wetter spring conditions can be a tremendous challenge for obtaining the proper moisture and forage quality. Ishler, 2018 (2) reported ranges in dry matter from 23 to 55%, ranges in protein from 10 to 19% and NDF of 50 to 66% on a dry matter basis for ryelage and triticale silage. Ketterings, 2014 (3) reported that double cropping ryelage had varied benefits from application of nitrogen.

For the sustainable intensification of double cropping to be most effective, research with the whole farm system can be beneficial in understanding where the greatest benefits lie. Along with the potential environmental benefits, the cost of production of the double crop as well as overall impact on whole farm profitability should be considered. Recent case study research by Ranck, et al, 2019 (4) observed that four case farms using double cropping with rye silages after corn anticipated an economic benefit from the double cropping. However, when the case farms were studied, only one of the four farms had a low enough cost of production for the double cropping to result in a positive economic impact. The remaining three farms had lower yields or less optimal forage quality resulting in a higher cost of production per ton of forage compared to the market price for complementary forages.

While there are certainly potential environmental and economic benefits from well-managed double crops, evaluating the “fit” of these crops into the whole farm system may be necessary to achieve the desired results. Planning for forage quality and quantity needs for the dairy and maintaining a competitive cost of production per ton of forage are necessary in order to realize the maximum benefits from any double cropping system.

## References

- (1) Magdoff, Fred, and Harold Van Es. *Building Soils for Better Crops*. 3rd ed., 2010.
- (2) Ishler, Virginia. “Double Cropping with Small Grains.” *Progressive Dairyman*, 28 Sept. 2018, pp. 28.
- (3) Ketterings, Quirine. “[Double Cropping Research Helps Northern New York Dairy Farms.](#)” *Farm and Dairy*, 6 July 2014,
- (4) Ranck, E.j., et al. “Short Communication: Evaluating Feed Cost, Income over Feed Cost, and the Cost of Production for Milk and Crops on 4 Case Study Farms That Double Cropped Winter Annual Silage and Corn Silage for 2 Years in Northern and Western Pennsylvania.” *Applied Animal Science*, vol. 35, no. 1, 2019, pp. 74–82., doi:10.15232/aas.2018-01792.