



Holly Whitesides, Against the Grain Farm

*Growing organic and
biodynamic produce in North
Carolina's western mountains*

INTRODUCTION TO THE FARM

Holly Whitesides and her husband Andy Bryant are co-owners and farmers at Against the Grain Farm in the mountains of Zionville, North Carolina. Holly and Andy purchased the land that is now Against the Grain in 2012 and have been farming the land ever since.

Against the Grain is a 35-acre certified organic and biodynamic farm growing a wide variety of vegetables, including tomatoes, lettuce, greens and ginger. Holly and Andy also raise livestock, including cattle and pigs. The farm sits on a hillside of loam and clay soils and experiences a highly variable mountain climate.

Farm objective

Holly's objective for the farm is to grow high quality, nutritious food that is accessible to residents in the community. She focuses on growing food specifically for people in the High Country because it is important to them to keep their food as local as possible.

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As the climate changes more and more, having those community connections to high quality food and having it be accessible for people will be really essential.”

—Holly Whitesides, Against the Grain Farm

Climate challenges and resilient practices

Against the Grain Farm faces two critical challenges from climate change. First, they face more severe and frequent swings of drought and excessive rainfall, which can damage crops and reduce production. Second, they experience stronger winds during storms, which can also damage crops, as well as the farm's infrastructure. In addition to these

weather challenges, the farmland had very little topsoil when Holly and Andy purchased it.

Holly and Andy grow cover crops from October to March/April on all of their row crop acres and build their own compost to increase the soil tilth and organic matter of their soils. They are experimenting by taking a field block out of production for a whole season and leaving it covered with cover crops. They have found that increasing soil health helps reduce the variability in soil moisture across growing seasons. This has helped the farm maintain stable yields during drought and heavy rain conditions.

Against the Grain also uses high tunnels to mitigate the effects of the highly variable mountain climate. They allow Holly and Andy to grow higher value crops like tomatoes and ginger that they could not grow before. The high tunnels also allow them to grow these crops for longer seasons, more efficiently manage water, and reduce disease and insect pressure.¹

About the Farm

Farmer: Holly Whitesides and Andy Bryant

County: Watauga

Crops and livestock: Tomatoes, lettuce, greens, ginger, peppers, cattle, goats, chickens and more

Farm size: 35 acres

Climate-resilient practices: High tunnels, cover crops and compost building

Financial outcomes:

- High tunnels increased farm income by \$13,000 per year.
- Cover crops increased net income of a quarter acre field by \$7.

¹ We were not able to measure the financial benefits of more efficient water use and reduced disease and insect pressure in our partial budget analysis below.

ECONOMIC IMPACTS OF CLIMATE-RESILIENT PRACTICES

Holly uses the accounting software QuickBooks® to manage and analyze the farm’s finances. She dedicated time to learn the software through a course offered at a local library, and she uses it to track the farm’s expenses, inventory and each crop’s financial performance. This tool has helped Holly make informed financial decisions to support the wellbeing of the farm.

Table one below presents the financial costs and benefits associated with growing tomatoes, ginger, peppers and other high-value crops using high tunnels at Against the Grain. The farm’s two high tunnels increased the farm’s revenue by \$17,074 per year by allowing Holly and Andy to grow higher revenue crops and by increasing the picking season duration. The first high tunnel cost \$12,000, which was offset

by a \$10,000 cost-share contribution from the Environmental Quality Incentives Program, run by the U.S. Department of Agriculture’s Natural Resources Conservation Service. The second high tunnel cost \$15,000, which Holly and Andy financed with a seven-year, 3.25% interest loan. The annualized cost of the first high tunnel and the annual loan payment for the second high tunnel together cost the farm roughly \$3,000 per year. Additional costs for a replacement layer of plastic, maintenance costs, trellising materials and labor brought the total annual cost of the two high tunnels to \$4,725 per year.²

Overall, the increased revenue generated by the high tunnels offset the additional costs, and the farm’s net income increased by \$12,938 per year.

Table one: Financial impacts of high tunnels

Increase in net income				Decrease in net income			
Increase in revenue				Decrease in revenue			
Item	Per sq. ft.	Sq. ft.	Total	Item	Per sq. ft.	Sq. ft.	Total
Increased picking duration and ability to grow high-revenue crop	\$3.95	4,320	\$17,074	None identified			
Total increase in revenue	\$4	4,320	\$17,074	Total decrease in revenue	\$0	0	\$0
Decrease in cost				Increase in cost			
Item	Per sq. ft.	Sq. ft.	Total	Item	Per sq. ft.	Sq. ft.	Total
Reduced labor from less weed pressure	\$0.02	4,320	\$89	High tunnel 1	\$0.28	2,160	\$600
EQIP cost share on tunnel 1	\$0.23	2160	\$500	High tunnel 2 loan payment	\$1.11	2,160	\$2,399
				High tunnel 1 replacement layer of plastic	\$0.05	2,160	\$115
				Other maintenance costs	\$0.01	2,160	\$20
				Trellising materials	\$0.01	4,320	\$21.76
				Trellising labor	\$0.36	4,320	\$1,569
Total decrease in cost	\$0.25	\$589	\$589	Total increase in cost	\$1.82	\$4,724.76	\$4,724.76
Total increase in net income	\$4	\$17,663	\$17,663	Total decrease in net income	\$1.82	\$4,724.76	\$4,724.76
Increase in net income \$12,938							

² Labor wages were estimated using Bureau of Labor Statistics’ “First-line supervisors of farming, fishing and forestry workers,” accessed at: bls.gov/oes/current/oes_nat.htm#45-0000.

Table two below presents the financial costs and benefits associated with planting cover crops on a quarter acre block for a whole growing season prior to planting row crop vegetables. Growing a cover crop mix of legumes and grasses on a quarter acre field has helped Holly and Andy reduce their organic fertilizer application, resulting in \$84.15 savings. Growing the cover crop on a quarter acre cost Against the Grain \$9.18 for cover

crop seed, \$26 in labor for planting the seed and mowing the cover crop, and \$39.24 for pulling tarp over the field to prepare for the row crops that follow.

In total, the cover crops increased the farm net income by \$7 – essentially having no significant short-term financial impact on the farm.

Table two: Financial impacts of cover crops

Increase in net income				Decrease in net income			
Increase in revenue				Decrease in revenue			
Item	Per acre	Acres	Total	Item	Per acre	Acres	Total
None identified				None identified			
Total increase in revenue	\$0	0	\$0	Total decrease in revenue	\$0	0	\$0
Decrease in cost				Increase in cost			
Item	Per acre	Acres	Total	Item	Per acre	Acres	Total
Fertilizer (Organic Symphony)	\$337	0.25	\$84.15	Cover crop seed	\$36.70	0.25	\$9.18
				Cover crop planting labor	\$52.32	0.25	\$13.08
				Mowing cover crop labor	\$52.32	0.25	\$13.08
				Pulling tarp labor	\$156.96	0.25	\$39.24
				Learning activities	\$10.46	0.25	\$2.62
Total decrease in cost	\$337	0.25	\$84	Total increase in cost	\$308.77	0.25	\$77.19
Total increase in net income	\$337		\$84	Total decrease in net income	\$308.77		\$77.19
Increase in net income \$7							

CONCLUSION

Holly and Andy are building their farm's resilience to increasingly severe swings between high rainfall and drought by increasing their soil's drainage and water holding capacity using cover crops. They are also controlling the temperature and moisture conditions of their high-value crops with high tunnels. Against the Grain has realized financial benefits from their climate-resilient practices in part due to Holly's strong financial recordkeeping and decision-making.

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To know your numbers is to be empowered by them, so having the financial piece in play has helped us make good and balanced decisions.”

— Holly Whitesides, Against the Grain Farm



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