The Growth and Transition of Sustainable Production Practices in Western North Carolina

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SUMMARY

This report presents the findings from an analysis of primary data exploring changes in the growing practices of farmers producing food for local markets in Western North Carolina from 2008 to 2016. Western North Carolina (WNC) is located in the Southern Appalachian Mountains and is the site of a vibrant local food and farm community. Nearly two decades ago, Appalachian Sustainable Agriculture Project (ASAP) implemented a local food campaign to raise awareness of and support for the region's farms, build markets for locally grown food, and provide the people that live in the region a voice in how food is produced. A key organizing piece of this campaign is ASAP's *Local Food Guide,* a directory of farms and the food businesses that purchase and sell products from local farms in WNC and the Southern Appalachians.

The *Local Food Guide* is published annually, and ASAP has used it to collect data from farmers since 2002 on products they grow and markets they sell to, and since 2008, on production methods they use. Farmers listing their farms in the *Guide* have been able to choose from a list of specific practices - Animal Welfare Approved (not a choice until 2013), biodynamic, Certified Naturally Grown™, conventional, free range, GMO-free, humanely raised, integrated pest management, low spray, certified organic, organic (non-certified), pasture raised, permaculture, and wild harvested. The number of farms listed in the Guide increased from 211 in 2008 to 603 in 2016 and each year farmers listed multiple growing practices. For this report, data on production practices were collated from the *Guide* and analyzed to understand how the growing practices farmers are using to produce food are changing.

Findings

The findings show that between 2008 and 2016 every production practice listed in the *Local Food Guide* grew but with notable differences between their growth rates and ratio to farmers. Organic (non-certified) and GMO-free were practiced by the largest numbers of farmers in 2016 and experienced the greatest proportional growth over the eight year period. Animal Welfare Approved and Certified Naturally Grown practices were reported by the fewest number of farms in 2016, but both experienced positive proportional growth. Conventional, biodynamic, and certified organic were the only practices that experienced a proportional decrease between 2008 and 2016.

A secondary analysis examined the growing practices of farms in the *Guide* that sell exclusively through direct markets (i.e., farmers markets, farm stands, u-pick, community supported agriculture). The results follow a very similar pattern to the primary analysis but with more substantial proportional changes.

ANALYSIS

Data from the *Local Food Guide* show that listed farms identify the use of a wide variety of production methods, the majority of which are considered sustainable practices. Table 1 summarizes the change in the number of farms using particular production practices from 2008 to 2016. The overall number of farms listed in the Guide increased from 211 in 2008 to 603 in 2016, so all production practices experienced growth, albeit at different rates.

Organic (non-certified) and GMO-free practices experienced the greatest positive change over this time period, adding 210 farms and 159 farms respectively. This represents a 295% increase in farms listing organic (non-certified) and a 331% increase for GMO free. In contrast, Animal Welfare Approved, Certified Naturally Grown, and certified organic practices experienced the least amount of growth. Only 11 new farms reported using Animal Welfare Approved practices in 2016 (this practice was not included as an option until 2013). Nineteen new farms reported using Certified Naturally Grown practices, and 19 new farms reported using certified organic practices. Despite the small increases in the absolute number of farms using these practices, this represents a 220% increase for Animal Welfare Approved, a 380% increase for Certified Naturally Grown, and a 295% increase for certified organic.

Table 1. Change in the number of farms using particular production practices, 2008-2016

	Number of Farms 2008	Number of Farms 2016	Change in Number of Farms	Percent Increase
Animal Welfare Approved	(2013) 5	16	+11	220%
Biodynamic	21	51	+30	143%
Certified Naturally Grown	5	24	+19	380%
Conventional	32	61	+29	91%
Free Range	44	166	+122	277%
GMO-Free	48	207	+159	331%
Humanely Raised	59	173	+114	193%
Integrated Pest Management	50	161	+111	222%
Low Spray	37	108	+71	192%
Certified Organic	12	31	+19	158%
Organic (Non-Certified)	88	298	+210	295%
Pasture Raised	44	161	+117	266%
Permaculture	29	94	+65	224%
Wild Harvested	21	72	+51	243%

To account for the steady annual increase in the total number of farms in the *Local Food Guide*, Table 2 examines the number of farms using specific growing practices in relation to the total number of farms in the *Guide* each year and examines how those proportions have shifted. This provides a better understanding of which practices farmers are prioritizing and how those priorities change over time as the number of farmers growing food for local markets expands (and list in the *Guide*) or as previously listed farmers alter their practices.

When ASAP first asked farmers in the *Guide* to report their growing practices in 2008, the greatest proportions of farmers reported using organic (non-certified) (41.7%) and humanely raised (28%). In 2016, organic (non-certified) was still the most popular production practice, with nearly half (49.4%) of farmers using it. The proportion of farmers using humanely raised stayed fairly constant from 2008 to 2016. GMO-free increased 11.6 percentage points to 34.3%, making it the second-most used production practice in 2016.

In 2008, Certified Naturally Grown was the least used production practice, with only 2.4% of all farmers in the *Guide* using it. When Animal Welfare Approved was added as an option in 2013, it was also only used by 2.4% of all farmers. These two practices remained the smallest proportionally in 2016 as well, with Animal Welfare Approved used by 2.7% of farmers and Certified Naturally Grown used by 4% of farmers.

Three production practices experienced a decrease in percentage points from 2008 to 2016: certified organic, biodynamic, and conventional. The proportion of farmers that were certified organic decreased from 5.7% to 5.1%. The proportion of farmers using biodynamic practices decreased from 10% to 8.5%. The largest decrease occurred among the proportion of farmers using conventional practices; from 15.2% to 10.1%. This perhaps represents a shift towards farmer and consumer preferences for more sustainably grown products.[1]

Table 2. Change in proportion of farms using particular production practices, 2008-2016

	Proportion of all farms in 2008 (211)	**Proportion of all farms in 2016 (603)**	**Change in Percentage Points**
Animal Welfare Approved	(2013) 2.4%	2.7%	0.3%
Biodynamic	10%	8.5%	-1.5%
Certified Naturally Grown	2.4%	4%	1.6%
Conventional	15.2%	10.1%	-5.1%
Free Range	20.9%	27.5%	6.6%
GMO-Free	22.7%	34.3%	11.6%
Humanely Raised	28%	28.7%	0.7%
Integrated Pest Management	23.7%	26.7%	3%
Low Spray	17.5%	17.9%	0.4%
Certified Organic	5.7%	5.1%	-0.6%
Organic (Non-Certified)	41.7%	49.4%	7.7%
Pasture Raised	20.9%	26.7%	5.8%
Permaculture	13.7%	15.9%	2.2%
Wild Harvested	10%	11.9%	1.9%

[1] See Perrett, A., & Jackson, C. (2018). The Influence of Farmer-Customer Interactions at Farmers Markets on Farmer Growing Practices. Asheville, NC. Retrieved from http://asapconnections.org/research-reports/

Direct Market Farms

Farmers listed in the *Local Food Guide* sell their products through a number of different market channels including direct-to-consumer and/or wholesale outlets. Direct-to-consumer outlets include farmers markets, farm stands, u-pick, and community supported agriculture, while wholesale outlets include selling to distributors, restaurants, and grocery outlets. This secondary analysis examines changes in the production practices of farms selling exclusively through direct-to-consumer outlets. These will be referred to as direct market farms.

Table 3 shows how the proportion of direct market farms using specific production practices changed over time. Similar to the analysis of all farmers in the *Guide*, organic (non-certified) was used by the largest proportion of direct market farmers both years, but at slightly higher proportions. Organic (non-certified) also experienced the largest increase over the eight-year time period, from 45.2% of direct market farms in 2008 to 58.2% in 2016. GMO-free had the second-largest increase, from 19.4% to 31.6%, making it the second most frequently used practice in 2016. Integrated pest management, which had held the second highest proportion in 2008, dropped nearly 7 percent over the eight years.

Animal Welfare Approved was used by only 3.2% of direct market farmers, making it the least used production practice in 2013 when it was added. In 2008, Certified Naturally Grown and wild harvested were the least used practices, with 6.5% of direct market farmers using each. The proportion of direct market farms using Animal Welfare Approved stayed fairly constant and remained one of the least used practices in 2016. Certified Naturally Grown declined slightly in 2016; wild harvested increased by almost 9 percentage points.

The two largest decreases occurred among certified organic and conventional practices. The proportion of direct market farms that were certified organic dropped from 12.9% to 1%, making it the least used production practice in 2016. The proportion of direct market farms using conventional practices experienced the greatest decrease overall, dropping from 19.4% to 6.1%.

Table 3. Change in proportion of direct market farms using particular production practices, 2008-2016

	Proportion of all Farms in 2008 (31)	**Proportion of all Farms in 2016 (98)**	**Change in Proportion**
Animal Welfare Approved	(2013) 3.2%	4.1%	0.9%
Biodynamic	19.4%	9.2%	-10.2%
Certified Naturally Grown	6.5%	6.1%	-0.3%
Conventional	19.4%	6.1%	-13.2%
Free Range	22.6%	28.6%	6.0%
GMO-Free	19.4%	31.6%	12.3%
Humanely Raised	25.8%	28.6%	2.8%
Integrated Pest Management	35.5%	28.6%	-6.9%
Low Spray	25.8%	21.4%	-4.4%
Certified Organic	12.9%	1.0%	-11.9%
Organic Non-Certified)	45.2%	58.2%	13.0%

Pasture Raised	19.4%	22.4%	3.1%
Permaculture	19.4%	18.4%	-1.0%
Wild Harvested	6.5%	15.3%	8.9%

CONCLUSION

The *Local Food Guide* is the region's most complete directory of farms growing food for local markets. The analysis of the trend data from the *Guide* provides some insight into the way the local food system in Western North Carolina is taking shape. Overall, the data show farmers are preferencing sustainable practices over conventional practices.

The two analyses, of all farmers in the *Guide* and of those farmers selling exclusively to direct markets, provides unique insight into the impact selling direct can make in how farmers grow and market their products. Although the two analyses presented similar trends, there are important differences in the proportion of farmers using certain practices. This is particularly true for certified and non-certified organic practices.

The proportion of direct market farms using organic (non certified) is high - nearly double that of the next frequently used practice. It is also much higher than the proportion of farms that are certified organic, especially following the prominent drop in the proportion of certified organic direct market farms between 2008 and 2016. Interesting, this drop was not as severe in the primary analysis of all farms. This suggests that while growing with organic methods is important to many farms in the guide, organic certification may be less important and/or achievable for farms selling their products directly to consumers. Direct market outlets allow producers and consumers to have face to face conversations where producers can explain their growing practices and build trust and relationships with consumers. This eliminates consumers dependence on a third party to certify that their food is grown sustainably and gives consumers a voice in how their food is grown.