



Mint Industry Research Council



2016

**FARM STEWARDSHIP ASSESSMENT
RESULTS SUMMARY**



SUMMARY

The **Mint Industry Research Council** (MIRC) and **FieldRise, LLC** developed and completed a groundbreaking farm stewardship measurement program with mint growers in 2016 across more than 30,000 harvested acres. The assessment applied a peer-reviewed sustainability measurement process to document practice-adoption success across 7 holistic priorities:

- 1 Nutrient, Water, and Energy Management**
- 2 Pest Management**
- 3 Land Stewardship**
- 4 Continuous Education and Community Involvement**
- 5 Business Operations**
- 6 Worker Safety and Environmental Protection**
- 7 Carbon and Water Measurement**

Growers from across North American production regions participated in the study. Innovative data analytics that ensure objectivity were used to differentiate grower responses and weight the intensity of best management practice (BMP) adoption for each grower. Individual grower reports were generated for those who completed the assessment and requested them. These reports graphically present each grower's BMP-adoption intensity results relative to their peers. In addition, we have developed this report summarizing the aggregated data collected and the main findings.



GROWER SUCCESS HIGHLIGHTS

Mint growers remain at the forefront of farm stewardship and BMP adoption, as highlighted in several assessment areas. Here are brief highlights for several topic areas.

SOIL, WATER AND ENERGY CONSERVATION

Fertilizer is applied in a responsible, science-based manner. Nutrient management is customized among mint growers. Growers utilize the best information available, have an overall management plan in place, and modify their fertility programs annually based on need. Additionally, growers keep fertilizer application records that can help relate inputs to crop yield and quality, enhancing the feedback loop for future advancements.

SUPPORTING DATA:

-  71% apply amendments according to soil test results
-  45% have written nutrient-management plans
-  Only 13% of growers apply the same amount of fertilizer every year

The latest technology is used to conserve water on the farm. Water may be the ultimate recycling program and mint growers are key partners. Mint growers optimize efficiency when it comes to water by utilizing the latest moisture-monitoring technologies, testing their equipment regularly and maintaining the water flow infrastructure on the farm.

SUPPORTING DATA:

-  71% of growers have a soil and water conservation plan
-  64% of growers maintain water records for at least 1 year
-  51% test and maintain proper pressure for all irrigation risers/heads and irrigation lines
-  45% use an irrigation-scheduling program



PEST MANAGEMENT

Integrated pest management (IPM) has been a grower priority and showcase of the mint industry for many years. This assessment strongly documents the widespread adoption of intensive IPM practices that would be challenging to match in other agricultural production systems. The growers know their mint pests very well and use that information to responsibly and efficiently manage them. The end result, reducing pesticide use, saves money and reduces environmental risk and impact.

SUPPORTING DATA:

All growers scout their mint, often with input from multiple sources:

- 49% of growers hire an independent crop consultant
- 87% of growers scout their own mint
- 51% rely on a farm input dealer

Good scouting leads to responsible pest management:

- 82% of growers use scouting to determine when pests have exceeded treatment thresholds
- 71% are able to reduce pesticide amounts because of scouting
- 64% use scouting to track the effectiveness of their IPM programs

A diverse set of IPM tools and strategies are used to manage weeds, insects, and diseases:

- 80% rotate herbicide classes specifically to avoid the emergence of resistance
- 76% spot spray or wipe problematic weedy spots instead of using a broadcast spray
- 80% employ hand weeding or mechanical control
- 49% rotate insecticide classes to reduce the risk of pest resistance
- 84% scout for insect pests at critical periods throughout the growing season in a systematic pattern
- 64% manage irrigation to minimize conditions favorable for diseases
- 82% scout for disease symptoms and are able to identify specific disease types
- 80% manage fertility for healthy plants in order to resist disease

SUPPORTING DATA:

Pest-resistance management is a high priority for mint growers:

- 51% of growers work with pest-management practitioners, crop consultants, or Extension personnel to develop or map out season-long pest-management plans to lower the risk of resistance development
- 47% consider pesticide chemical group numbers that appear on pesticide labels when making fungicide/insecticide/herbicide selection
- 78% choose pesticide rates within the labeled range that are sufficient to prevent pest reproduction or selection for resistance

Pollinator protection benefits the natural environment:

- 71% apply insecticides when pollinators are not in fields (e.g., late evening)
- 65% focus on limiting insecticide drift into pollinator feeding, nesting, and off-site areas
- 58% specifically choose pest-management materials that are pollinator safe



LAND STEWARDSHIP

Mint growers are stewards of their land, actively conserving native wildlife and supporting biodiversity. Mint growers counter the trend in many agricultural areas by knowing and monitoring their surrounding landscape.

SUPPORTING DATA:

- 51% know the natural plant and ecosystem community types on their land
- 51% monitor property for invasive plants/animals and consult proper authorities for identification and corrective action as warranted

CONTINUOUS EDUCATION

Mint growers stay up-to-date on improved production practices and ways to protect their nearby environment. Not only do mint growers pay attention to new technologies and production challenges through continuous education, they're active partners in the research to develop these novel technologies in the first place. And, they're very involved in community leadership well beyond the farm gate.

SUPPORTING DATA:

- 91% of owners or farm managers have attended educational meetings in the past year
- 56% have conducted on-farm research in collaboration with university, Extension, or other agricultural professionals in the past 5 years
- 75% maintain records of farm practices for 5 or more years to track efficiency and improve production

COMMUNITY INVOLVEMENT

MINT GROWERS ARE COMMUNITY LEADERS:

- 75% are involved in a local service organization (e.g., church, civic group)
- 89% are members of an agricultural trade organization
- 51% participate in agritourism events to promote the benefits of agriculture in their area and community
- 47% have donated farm products to a food pantry or food bank in the last 5 years
- 51% are local community leaders (e.g., serve on local school committees, city/town government, conservation commission, or other municipal or county board)

Mint growers are concerned about environmental protection:

- 91% of mint growers monitor wind speed during pesticide application
- 75% spray only when winds are blowing away from sensitive sites
- 76% recycle used pesticide containers (including bulk returnable containers)
- 76% use drift-reduction nozzle tips
- 75% calibrate spray-application equipment 2 or more times per year

MEASURING GREENHOUSE GAS EMISSIONS

As highlighted throughout this report, mint growers are adopting management and production practices that improve environmental sustainability. To measure the impact of sustainability measures on greenhouse gas emissions, the study estimated greenhouse gas emissions from general field operations, pesticides, fertilizer, irrigation, and energy used to extract mint from harvested plants. The analysis showed that key areas of focus for reducing the carbon footprint for mint oil include fertilizer use and energy use for distillation and irrigation. Improving efficiencies in these areas likely would enhance average profits while improving environmental sustainability.



CONCLUSION

This study objectively validated that mint growers are advanced in sustainable practice adoption. Documenting and communicating this leadership is increasingly important with more consumers asking questions about where their food comes from and how it's produced. However, like any business, there are tradeoffs in farming. Agricultural production at any intensity is not possible without potential for off-farm effects. By anchoring operational decisions and the off-farm conversation on objective data and effective public outreach, growers can reduce those effects, improve operational success, and secure recognition for their dedication at the same time. This study shows mint growers already have been focused on sustainability and measuring BMP adoption indicates they remain committed to continued success. Repeating this program after MIRC growers continue BMP adoption will objectively document progress in the 7 priority areas we studied.

ABOUT FIELDRISE



FieldRise LLC is an independent group of agronomists, statisticians, researchers and behavioral change experts with university affiliation. They apply agriculture's first peer-reviewed process to measure, analyze and advance farm sustainability practice adoption and outcomes the easiest way — starting from the ground up. The FieldRise process applied by Mint Industry Research Council was piloted by more than 1,500 growers in more than two dozen crop and livestock sectors totaling more than 1.5 million acres. FieldRise bridges farm, stakeholder, and supply chain goals across more acres faster by harnessing new technology and strategy innovations. | FieldRise.com