INTERNATIONAL FRESH PRODUCE ASSOCIATION℠

Organic Seed Usage and Markets in Fresh Produce

In response to National Organic Standards Board (NOSB) 2024 fall meeting discussion about organic seed, the International Fresh Produce Association's (IFPA) Organic Committee, formed an organic seed working group, to review the current usage and markets of organic seed used for organic production of fresh produce. To conduct this review, IFPA formulated and distributed two surveys tailored to organic seed availability and usage at the producer level and among specialty crop seed manufactures of organic seed. The intention of the survey was to gain a better understanding of organic seed usage across the organic fruit and vegetable sector, determine marketplace and availability of viable organic seeds, compare costs, and identify distinct characteristics of the fresh produce industry that may impact organic seed usage, research, and development of organic seeds.

Survey Results Summary: Producers/Farmers

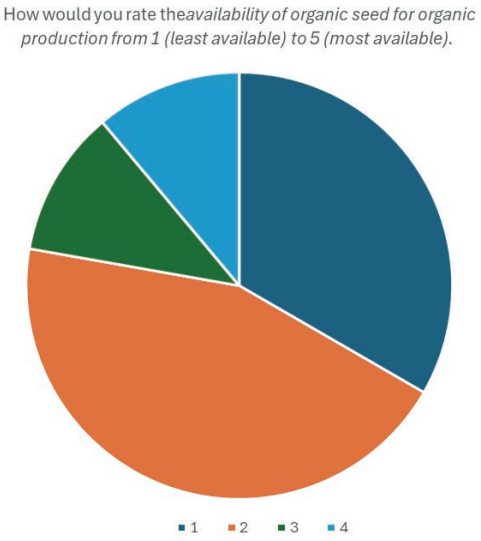
The survey respondents are representative of a wide range of organic fruits and vegetables across the United States, notably capturing 100% of certified organic growers in Texas, organic growers in the Pacific Northwest, California, and the East Coast, as well as the largest organic producers of fresh fruits and vegetables in the U.S. The respondents include producers of over 65 different varieties of organic vegetables including carrots, potatoes, sweet potatoes, garlic, tomatoes, fruiting vegetables and leafy greens in the fresh market, in addition to organic berries and other fruits.

What percentage of your current total seed production is organic seed vs. untreated conventional seed?

- Responses generally indicated the reliance on untreated conventional seeds. Some said it was a 50/50 split, others said only 10% was organic seed.
- One respondent noted that their entire production is 10% organic, but if the regulation was changed to only allowing organic seed instead of organic and untreated conventional seed, their ability to produce organic would be 0%.

Rate the availability of organic seed for organic production from 1 (least available) to 5 (most available).

- Most responses rated availability 1 and 2, indicating these seeds are largely unavailable in production.



Which crops have a lot of organic seed varieties available in the marketplace?

- Generally, participants noted that availability varies depending on crop year, availability, and how many seeds are needed. Organic seed is not available in large enough quantities to support large scale agriculture, so usually untreated conventional seed must be used to supplement.
- Crops mentioned: cilantro, beets, chard, leafy greens, basil, oregano, and sage. Specifically, growers mentioned that corn and soy were still the easiest seed varieties to find, showcasing the discrepancy of available organic seed commodities and varietals in fresh produce even more.

Which crops have limited organic seed varieties in the marketplace?

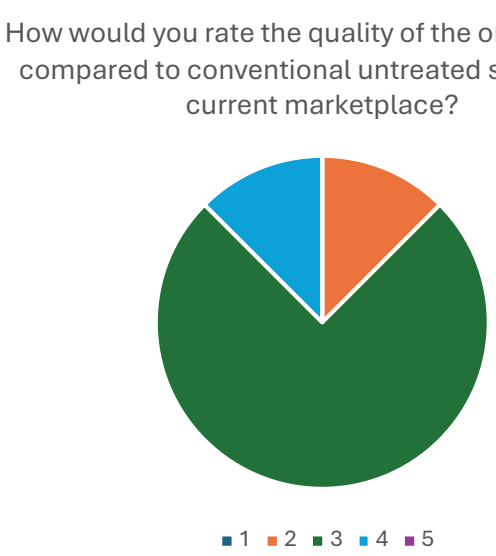
- Organic hybrid varieties are difficult to source because of their limited availability. For example, one respondent noted that "Organic spinach seed is not commercially viable with crop failures estimated to be around ~70%. 75% of hybrid spinach seed is produced in Denmark which does not have enough organic certified ground." Additionally, one respondent referenced how the certified organic farmers can use non-GMO seeds for sweet corn, but because cost is lower and quality is higher, it has undermined the certified organic hybrid market for years.
- Hand pollinated hybrids also largely cannot be produced because of limited growing regions. Seed producers must use parental inbreds to produce commercialized hybrids. Often, these are less vigorous and usually lack some of the pest resistance that the hybrid will have.
- Specific crops mentioned: broccoli, cabbage, kale, onion, watermelon, sweet corn, tomatoes, beans, peas, peppers, and leafy greens.

Which crops are easiest to find in the organic seed varieties?

- Similar to the earlier response, cilantro, beets, thyme, sage, and cover crops are the easiest to find in organic seed varieties. However, survey responses indicated that the term "easiest to find" is misleading, since these crops are easier to find relative to other seeds – not easy relative to the entire seed marketplace. Organic seed varieties still lack the availability and quality to be reliable for growers, therefore growers must rely on untreated conventional seed to produce adequate yields.

How would you rate the quality of the organic seed compared to conventional untreated seed in the current marketplace?

- Survey participants were asked to rate on a scale of 1 (low) to 5 (high quality). The majority of the respondents rated the quality as a 3.



How would you describe the current market and demand for organic seeds in organic production?

- Generally, demand is higher than supply. There are not enough varieties for individual commodities and to support different growing regions or pest prevention.

How would you rate the performance of commercially available organic seed compared to conventional untreated seed in terms of yield?

- Answers to this question varied across the scale – we asked respondents to rate yield from 1 (low yield) to 5 (high yield). Most respondents rated this as a 3, while other answers varied between 1 and 2. None of the responses gave a rating of 5.

Are there any specific research needs to improve quality, yield or cost issues with a particular organic crop seed, seedstock or spore to be made aware of?

- Research priorities included cost, seed production methods, regional specific varieties, the need for fungicides and other crop protection tools, and ways to increase yield.

Are there any other limitations, complications or challenges in manufacturing organic seed for use in the U.S. organic production or across the supply chain?

- The costs associated with bringing fields to organic certification standards, maintaining those standards, and meeting expectations is not attractive. Farmers need to cycle their crops in order to perpetuate income.

Would it be helpful for seed manufactures, if the U.S. created a voluntary organic seed database similar to the EU model? If yes, would it be more helpful to have information collected and reported on at the national or regional level?

- All responses, except for two, said yes, it would be helpful to have an organic seed database. However, responses were split between whether it would be helpful to offer the information between a regional or national level.

Other issues to raise?

- One individual noted that the most difficult piece is having consistent availability of organic seed. It can also be difficult to find varieties that have the same characteristics as their untreated counterparts.

Survey Results Summary: Seed Manufacturers

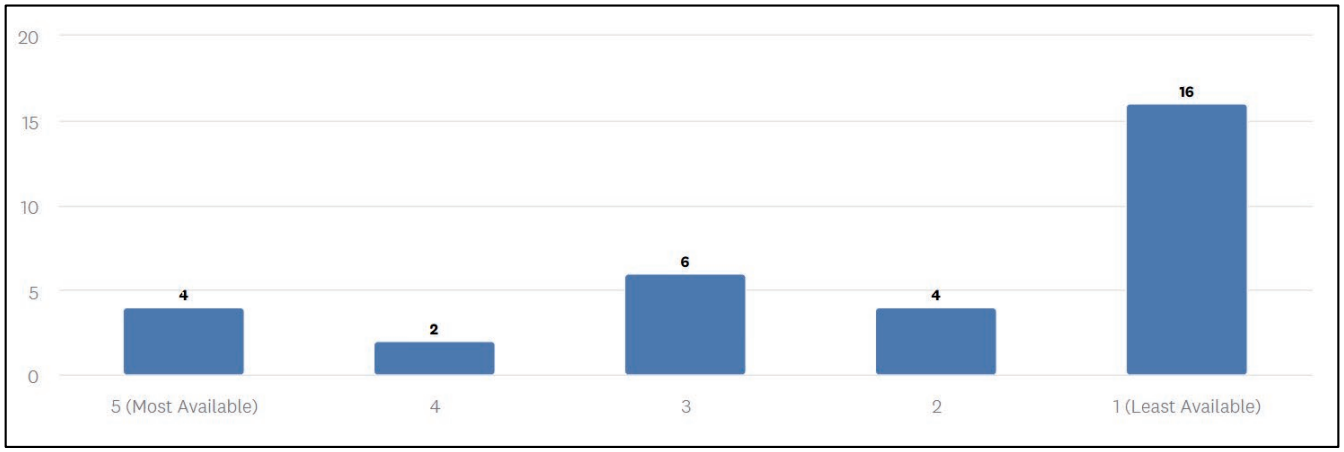
Respondents to the seed manufacturer survey represent a diverse group of organic seed producers and producers of both organic and conventional seed from across the country that specialize in seed types including vegetable, row crops and conservation. Questions and a summary of findings are below.

What percentage of total seed production is organic versus untreated conventional?

- All respondents noted they rely on untreated conventional seed over organic seed, but ratios varied.

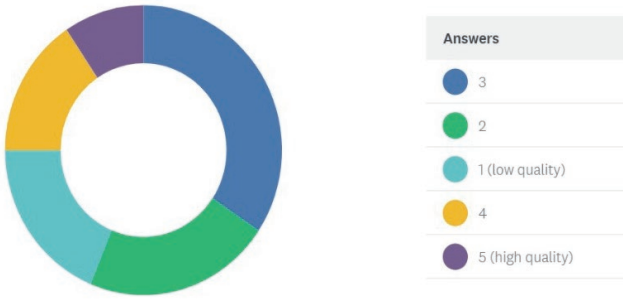
How would you rate the availability of organic seed for production?

- Each respondent was asked to rate the availability of organic seed for production from 1 (least available) to 5 (most available). Almost every single response rated availability as a 1.
- Crops that have a lot of varieties: Responses varied, but some said it depends on company and growing region, but generally speaking it is difficult to find any. Specific crops mentioned were chard, mizuna, spinach, and spring mix.
- Crops that have limited varieties: Responses varied here as well, but included sweet corn, carrot, beet, tomato, pepper, cucumber, cauliflower, cabbage, peppers, herbs, and iceberg lettuce.
- Crops that are easiest to find seed varieties: It would depend on where the seed is produced, but tomatoes, fennel, mustards, and spring mix were named.



What is the quality of the organic seed market compared to conventional untreated seed?

- Each respondent was asked to rate the quality of organic seed for production from 1 (low quality) to 5 (high quality). **Every single response rated quality of organic seed lower than conventional untreated seed.**



How would you describe the current demand for organic seed in organic production?

- Each response cited low demand for organic seed because it is difficult to produce, it is expensive, and there are not many varieties of seed types.
- One response said that "it is not worth the input cost to produce organic seed for such a low percentage of the overall business and difficulty finding seed production land."

How does seed availability vary?

- Seed availability varies based on growing regions, production methods, and types of mediums. Some noted that organic producers often do not want to grow organic seed because it is not cost effective, therefore manufacturers cannot justify the cost of producing them. Another response noted that varietals must meet temperature ranges, disease resistance, planting windows, and quality yield, which all impact availability.

How is the performance of commercially available organic seed compared to conventional untreated seed in terms of yield?

- Respondents were asked to rate on a scale of 1 (low yield) to 5 (high yield). Responses ranged from 1-4, with an even distribution between those numbers. No responses said it was a 5.

Are there specific research needs?

- Insect control options, specifically for lygus bugs on carrots; lettuce mosaic virus
- Research on maintaining carrots and beets organic standards
- Cheaper ways to produce organic seed and better yields
- Weed control of biennial crops (carrots, beets, and onions)
- Better reporting mechanisms on the market for seed
- Time from new genetics (resistances) to be developed, trials, and then final set for organic production (takes 5-10 years)

Are there other challenges to raise?

- Expensive to grow
- Unpredictability
- Land availability and warehouse certification
- Production costs
- Pests and weather

One response noted that the same pressures that impact crop production generally impact seed production, if not more intensely, because there is more time to bring the seeds to maturity.

Would it be helpful to create an organic seed database similar to the EU model?

- Responses were split, though more participants said it would not be helpful to have a database. If there were to be a database, every response said that a regional database would be preferred over a national database.

Any other feedback?

- "You could not sell product for what you would need to break even… it's not economically feasible. My experience is that some of the best varieties - the ones that tend to be slower bolting - are also usually the hardest to produce. It would be even more difficult to produce them organically. It makes no sense to sell something for more money with less than ideal results (both less quality and less yield)."
- "The price of this seed would kill the organic market and suppress it similar to the EU levels."

Key Findings and Considerations

NOP Questions

- Are there any fresh produce for which organic seed availability is high?
- When organic seed is available, what is the premium for it versus conventional seed?
- For commodities whose organic seed availability is low, what are the barriers to increasing availability?

Barriers to Entering the Organic Seed Market

One of the reasons seed manufacturers are apprehensive to grow the organic seed market is because of high barriers to entry. Participants from the industry emphasized that "if you are growing organic seed, you struggle with every aspect that farmers struggle with growing organic, such as land, pests, and cost." Having to isolate crops and coordinate crop rotations without pest control have a major impact on availability and feasibility of seed production. Geographically, there are only a few places in the world with the climate conditions to grow organic seed varieties in quantities that are available to commercialize. Additionally, seed manufacturers noted that there is a lot of consolidation in the seed dealing industry, and with high costs, smaller operations do not have any incentive to enter the market.

Premium Differences for Organic or Untreated Conventional Seed

There are a number of premium differences for organic seed versus untreated conventional seed that stakeholders noted.

1. Certainty of Supply – Growers often cannot rely on the availability of the organic seed. This is very challenging for organic produce growers due to regional differences and large number of varietals.
2. Quality and Yield – Organic seeds that vary in germination, vigor, or shelf life create high costs for producers. There is also unpredictability around yield, making farmers wary of relying on organic seed.
3. Cost – In addition to high costs noted above, organically approved seed coatings and research for these coatings is extremely costly.

Barriers to Increasing Availability

One main barrier is land availability. There is limited land where organic seeds can be grown, and even if the land is certified and available, the climate conditions may not be appropriate for growing the necessary seed to meet regional differences or environmental concerns. Additionally, for some crops like cabbage or broccoli, the longer they are in the ground, the higher the risk of disease. Controlled environments may be more beneficial for this growth, however, the technology for controlled agriculture must be present and more common for this practice to meet demand. Another barrier raised is that crop rotation times are much longer in seed development; for example, some crops require 16 years. All the same challenges for growing organic crops exist for seed production.

Research Topics

Industry members suggested that NOP focuses on production of seed issues. Research may not be essential, as producers already understand how to grow the crops. However, producers and manufacturers responding to the survey encouraged research around better tactics -- such as an expansion of crop protection tools -- to manage pest and disease while maintaining organic standards, since this is a barrier to being able to grow viable crops. There hasn't been much attention paid to risk management and protections for organic, fresh produce varieties.

Seed Database

Growers and manufacturers both questioned the utility of a seed database, since there are extensive logistical questions that would need to be addressed. Questions raised include:

- What would registration look like?
- What would the end goal of the database be?
- How would the database be updated without burdening growers?
- How would we define regions? Would the database be national?
- Could accredited certified agents play a role in helping to grow this database?
- Even though it could be helpful with sourcing, it would have to be updated regularly with personnel that understand the nuances of different crops, what "available" means in terms of seed variety and location, and compliance.

Policy Discussion

Growers and seed manufacturers generally agreed that the current model of seed standards and certification are sufficient and do not need modification. If stricter standards were applied, it would drastically hurt the organic fresh produce industry, increase costs for consumers, and drive manufacturers or farmers out of the market. The industry would recommend continuing discussion with NOP around the current market before making any drastic changes that could harm the industry. Simple changes with certification or ability to use organic versus untreated conventional seed could have unintended consequences and ripple effects for the full food supply chain and availability of organic crops for domestic and global consumption.

One area that requires more attention is the availability of genetic technology. Producers raised concerns about whether the organic industry will be able to keep up with new technology around farming methods.

This is an area that NOP must get correct, since all stakeholders emphasized the importance of seed standards and how changes could decimate the industry.

Policy Recommendations

As stated throughout the findings from this survey, large disruptions to the current organic seed practice could have significant impacts on the availability of organic fruits and vegetables in the marketplace. Any consideration of updates to those standards should start with an incentive-based approach aimed at increasing availability of organic seed and addressing the production challenges of developing new organic seed.

Stakeholders emphasized and unanimously agreed that direct stakeholder engagement with producers of the fresh produce industry must be considered outside of the NOSB discussions and deliberations. Any efforts to reform the organic seed practice without industry input will result in consequential and potentially catastrophic effects to growers and manufacturers.

Appendix – Additional Information

Reference the "Organic Seed Survey Responses – FINAL" document for all survey responses.