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Vermont Seed Saver and Producer Survey: 2020 Summary Report

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VERMONT SEED SAVER AND PRODUCER SURVEY

2020 Summary Report

The Consortium for Crop Genetic Heritage at the University of Vermont

Report #2020-01

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INTRODUCTION

In February 2020, a survey titled “VT Seed Saver and Producer Survey” was sent to 253 Vermont seed producers,¹ defined as anyone who grows seeds and/or other planting material (bulbs, rootstocks, cuttings, etc.) to save, share, or sell. This survey was part of a larger research project interested in characterizing Vermont’s seed systems, with particular attention to how these systems can be leveraged to promote increased food security, self-sufficiency, resilience, and climate change adaptation within Vermont. Moreover, this survey sought to identify areas of opportunity and concern for seed producers across the state. Through this survey, we gathered valuable data on the types of planting material produced from food crops in the state, the forms of exchange that exist, as well as information on the motivations, challenges, and preferences that non-commercial and commercial seed producers perceive in their production of planting material.

We recruited survey respondents through organizations such as Front Porch Forum, Northeast Organic Farming Association of Vermont (NOFA-VT), and UVM Extension. Interested individuals were able to access the survey and share it with other farmers and gardeners in their networks. Because the participants were not chosen randomly, the data cannot be assumed to represent all seed producers or seed networks in Vermont. However, the data presented in this report gives us valuable insight into the goals, actions, and motivations of seed producers in Vermont, which will allow us to focus energy in the future toward strengthening and supporting seed producers and the seed systems they utilize across the state.

While conducting the survey, many participants expressed interest in the findings that the survey would provide. Sharing the survey findings is also important to us! The intention of the research we are doing is to support and strengthen Vermont’s seed systems. Going forward, we envision this report as the beginning of a collaborative effort with you – Vermont’s seed producers – by bringing people together and building networks around a common interest in seeds. Planting material serves as the basis of resilient, sustainable agriculture, and through this survey, we have found that seed producers maintain this essential resource in their gardens and fields across the state of Vermont.

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¹ The survey gathered data from individuals that save seed for personal and/or community use (seed savers) and those that produce seed for commercial production (seed producers). Throughout the report, the term “seed producer” or “producer” refers to both seed savers and seed producers.

REPORT OVERVIEW

As we reviewed the data, we found that the structure of the findings followed the 5 “Ws” commonly taught to students of journalism. When attempting to paint a picture of a situation, being able to understand Who, What, When, Where, and Why enables one to more clearly tell a compelling story. This report breaks down the findings into these categories, and also includes the more recently added “H” – How.

First, the “WHO” tells the story of the study respondents – where they live, gender representation, education levels, etc. The “WHAT” describes the seed characteristics that seed producers in this study value, what species of food crops are grown, and the number of varieties produced. Current and future challenges to the production of planting material are found in the “WHEN” section. “WHERE” presents information about where respondents source and distribute planting material and whether they gift it, barter with it, or purchase/sell it. Motivations for the production of planting material are provided in the “WHY” section. The final section, “HOW,” contains concluding thoughts, resources, next steps for our seed system research, and an opportunity to provide us with feedback and recommendations to help guide our next steps.

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WHO: Demographics of Seed Producers

Respondents hailed from all counties in Vermont, except Essex, with the most respondents from Chittenden county (28%), which is the most populous county in Vermont (Figure 1). The second largest representation was from Washington county, home to Montpelier. This first glimpse into Vermont’s seed system appears to represent Northwestern Vermont more than Southern Vermont, Central Vermont, or the far Northeast Kingdom (NEK). Taking this into consideration, we look forward to exploring the actions and opinions of seed producers in these underrepresented areas in future studies.

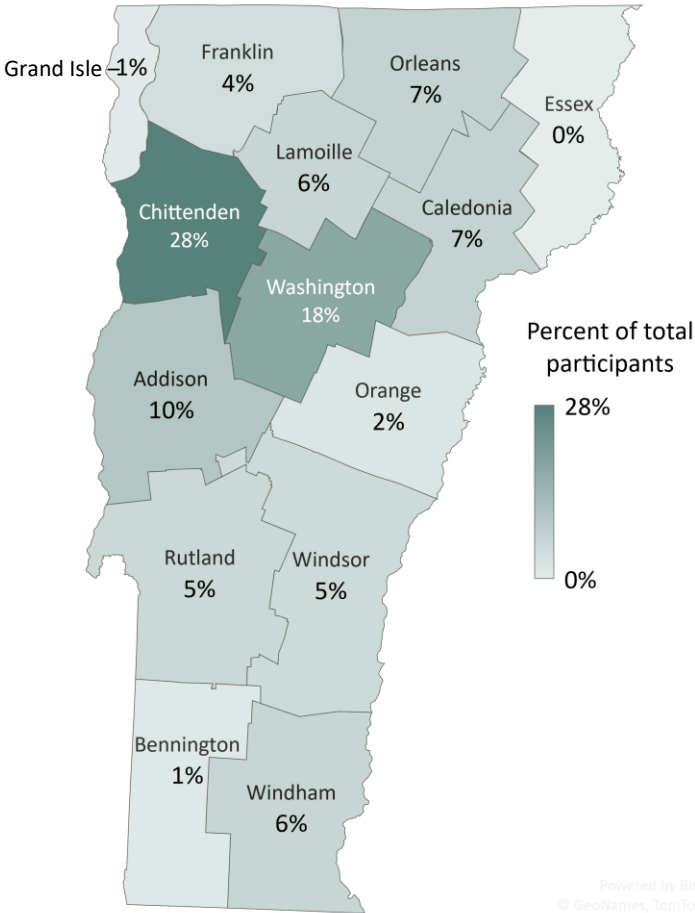


Figure 1. Distribution of counties represented (n=151)

the state and we recognize that their voices are not sufficiently heard in these findings. In the spirit of inclusivity and the need for accurate representation of seed producers in Vermont, we will strive to connect and collaborate with these individuals in the future. The “Other” category includes free text responses from individuals who identify with other races/ethnicities. Looking at the gender breakdown, 71% of respondents identified as female (Figure 3). The age range of respondents was 27-84 years

Southern Vermont, Central Vermont, or the far Northeast Kingdom (NEK). Taking this into consideration, we look forward to exploring the actions and opinions of seed producers in these underrepresented areas in future studies.

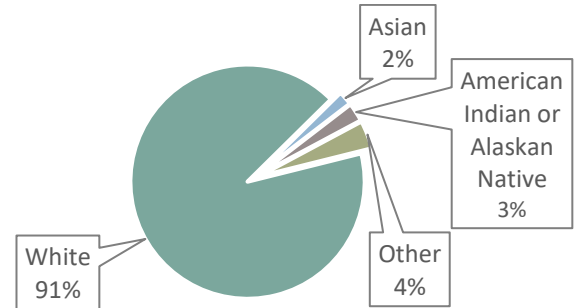


Figure 2. Racial identity of respondents (n=153)

Given the racial makeup of Vermont, it is perhaps not surprising that the vast majority of respondents identified as “White” (Figure 2). A small percentage of “Asian” (2%) and “American Indian or Alaskan Native” (3%) seed producers responded to the survey, but we unfortunately had no representation from “Black or African American” or “Native Hawaiian or Pacific Islander” seed producers.² Through other research we are conducting with the Burlington-based New Farms for New Americans program, which is affiliated with the Association for Africans Living in Vermont (AALV), we know that there are people of color who practice seed production within

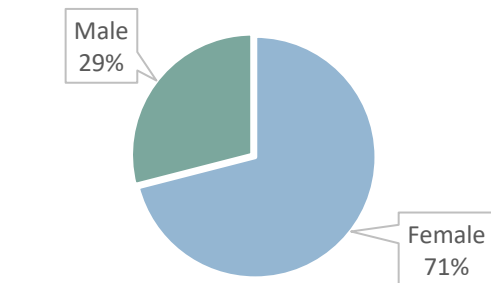


Figure 3. Gender of respondents (n=148)

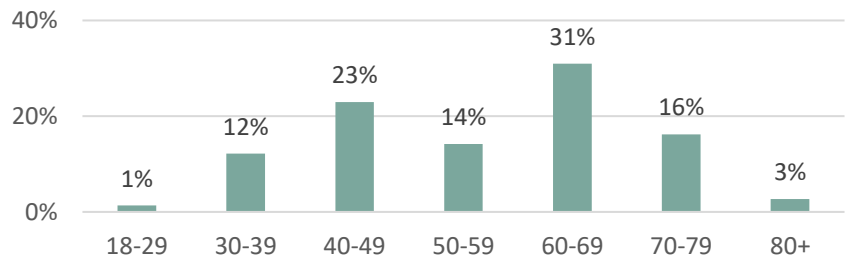


Figure 4. Age of respondents (n=148). Mean age = 56.4 years

² Race and ethnicity categories consistent with those from the United States Census.

old, with a mean age of 56 years (Figure 4, previous page). The age range with the largest number of seed producers was 60-69, encompassing 31% of respondents. In addition, respondents were, on average, well-educated and middle class (Figures 5 & 6).

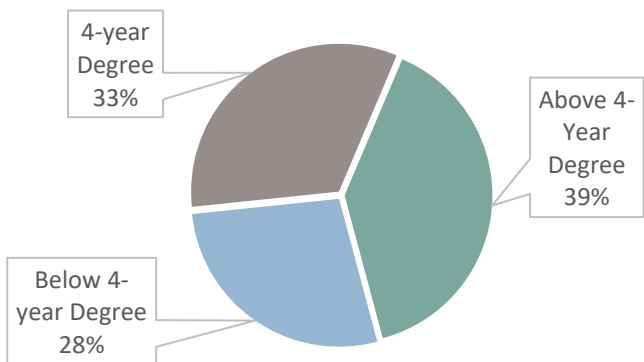


Figure 5. Level of formal education attained by respondents (n=143)

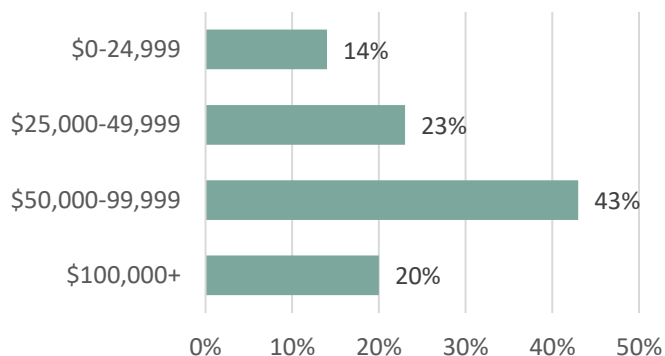


Figure 6. Yearly household income of respondents (n=133)

Among respondents, the vast majority reported being non-certified organic (81%; Figure 7). When respondents were asked why they produce planting material, they selected a variety of reasons, but the most common response was to “maintain a personal farm and/or garden” (Figure 8). Production of planting material as a source of *primary* income was rare among respondents, although 18% indicated that their production of planting material was a source of *supplementary* income. In addition to food crops, respondents reported producing planting material for medicinal plants or herbs, flowers, animal feed, and fiber crops (Figure 9). Lastly, only a small percentage of survey respondents reported being associated with a seed company (1%) or seed organization (6%), with the vast majority of respondents producing planting material as an individual farmer or gardener (97%).

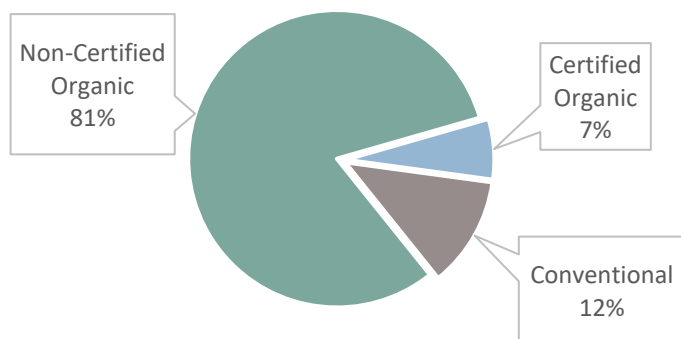


Figure 7. Farming practice that best describes respondents' approach to production of planting material (n= 137)

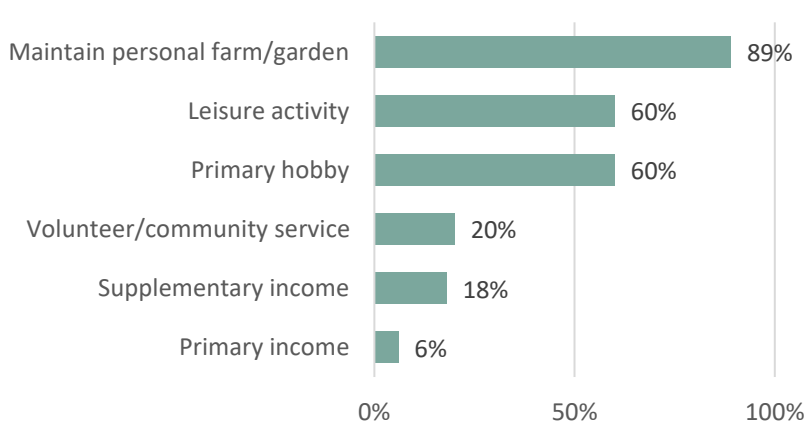


Figure 8. Role of planting material production in the life of respondents (n=151) Note. This question asked respondents to “select all that apply,” leading to results that do not sum to 100%.

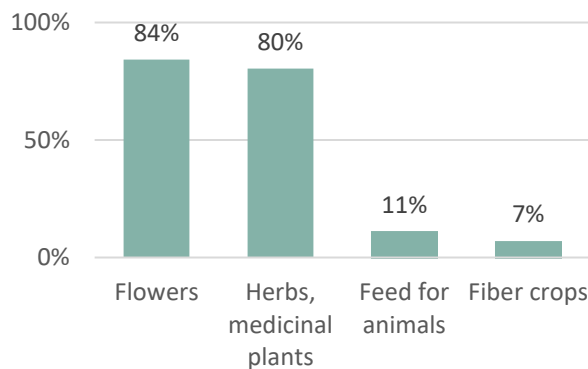


Figure 9. Other plants from which respondents produce planting material (n=151)

Note. This question asked respondents to “select all that apply,” leading to results that do not sum to 100%.

WHAT: Seed Characteristics and Diversity

We asked survey respondents to rate the importance of a variety of characteristics of planting material to better understand what seed producers prioritize in their own sourcing and production. Overall, on a scale of 1=not important all to 5=very important, seed producers rated most characteristics as important, showing that respondents valued a wide range of characteristics (Figure 10). “Flavor of fruit crop” was rated as the most important overall characteristic (M=4.43), followed by “regionally adapted” (M=4.33) and “non-GMO” (M=4.28). Respondents rated most environmental characteristics (e.g. disease, pest, frost, and heat resistance) as important except, surprisingly, flood resistance, which was rated as somewhat unimportant (M=2.23). Economic characteristics were, on average, rated the least important, with access to planting material (M=3.05) and affordability of planting material (M=2.95) being the only two characteristics rated right around neutral, indicating that seed producers found them neither important nor unimportant on average.

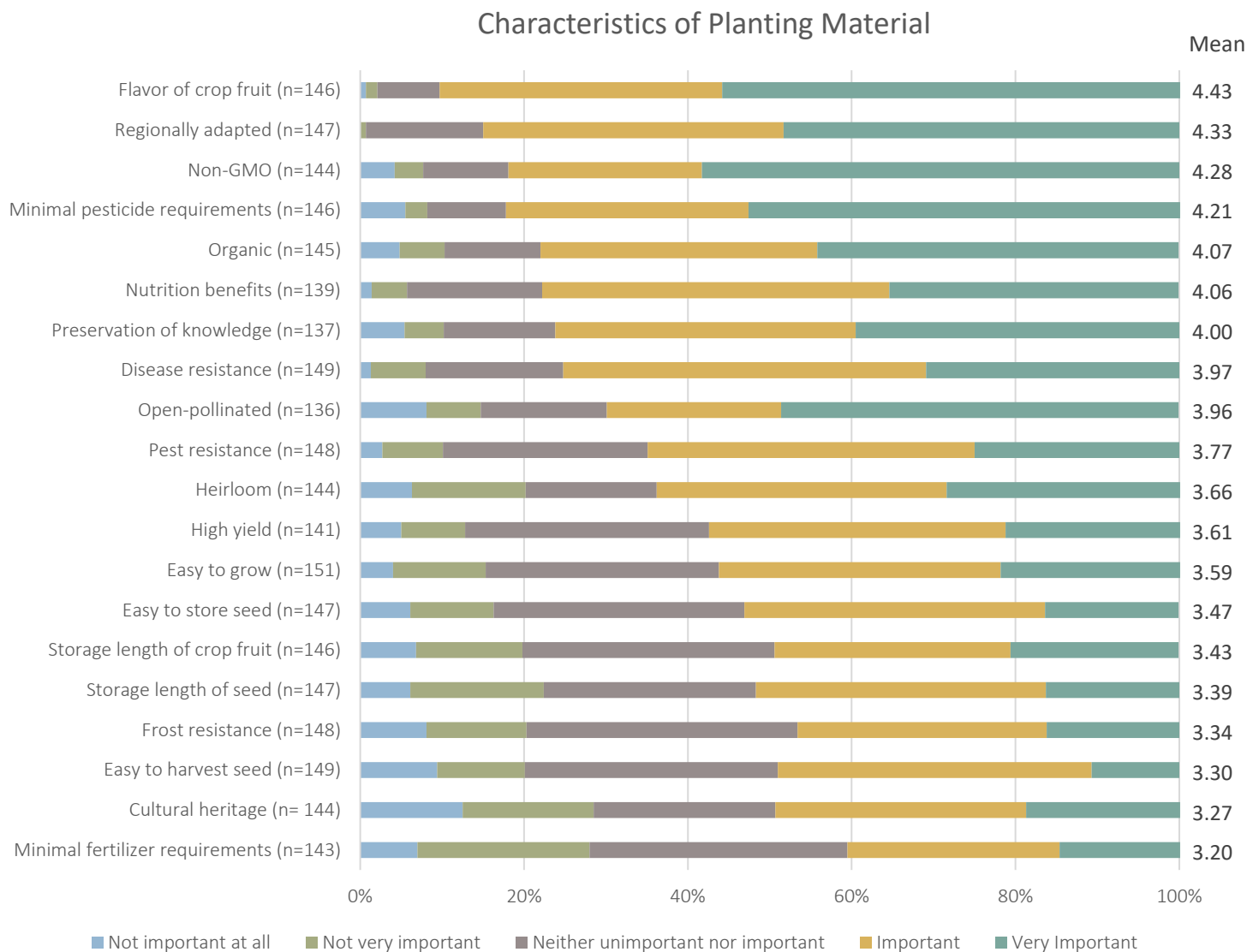


Figure 10. Twenty highest rated characteristics of planting material

Note. Bar graph shows the percentage of respondents selecting each response on the given scale of 1-5 where 1= Not important at all, 2= Not very important, 3= Neither not unimportant nor important, 4= Important, and 5= Very important. Mean response scores for each characteristic are presented to the far right in the figure.

Seed producers reported growing hybrid, heirloom, and open-pollinated varieties (OPVs) to produce planting material (Figures 11-13). One-third of respondents estimated that *all* of the planting material they produce was from open-pollinated varieties, with another 32% estimating that *most* of their planting material was from OPVs. Heirloom seeds were quite prevalent: only 1% reporting growing *no* heirloom varieties and over one-third estimated that *most* of the planting material they produce was heirloom varieties. For hybrid planting material, almost 40% reported growing *no* hybrid varieties, with 40% reporting growing *some*.

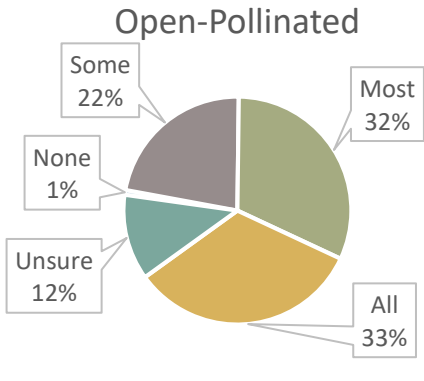


Figure 11. Percentage of planting material that is open-pollinated (n=148)

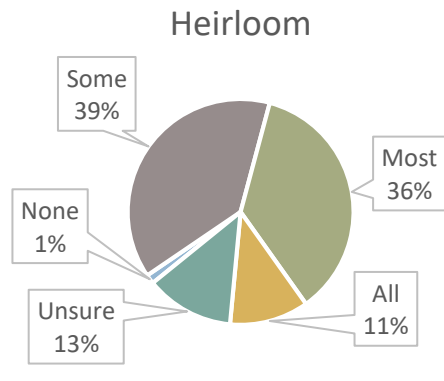


Figure 12. Percentage of planting material that is heirloom (n=150)

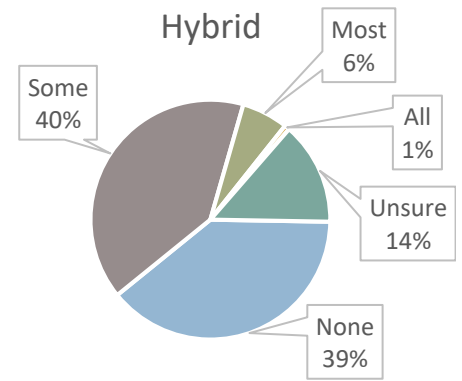


Figure 13. Percentage of planting material that is hybrid (n=144)

We were particularly interested to learn about what food crops seed producers grow and were impressed by the diversity of food crops from which respondents grow planting material (Figure 14). Over 70% of respondents reported growing garlic, beans, and tomatoes – by far the most common crops. Other commonly grown crops include peas, squash, potato, lettuce, peppers, onions, and cucumbers. Raspberries and strawberries were the most commonly grown fruit, with over one quarter of respondents growing them. Only a small percentage reported growing grains, with corn the most common (22%). Respondents

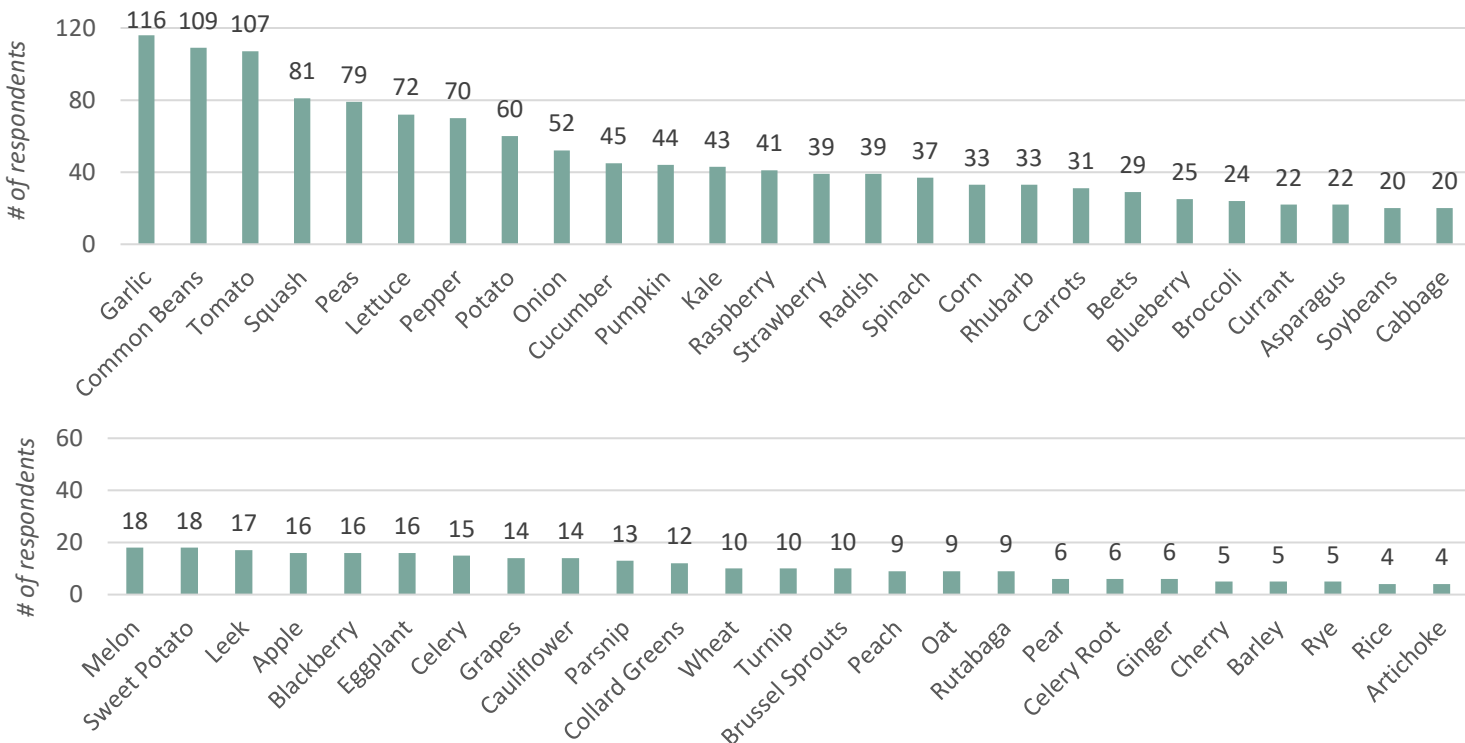


Figure 14. Number of respondents growing food crops for planting material (n=151)

were also asked to indicate the number of varieties of each food crop that they propagate in their farm or garden, and we were amazed by the numbers that seed producers reported. Figure 15 shows the varietal ranges, with the highest reported value for each species indicated to the right of each bar. A number of producers reported growing a large number of varieties: one producer reported 85 varieties of tomato and another reported 15 varieties of potato. We were also surprised to find one producer growing 13 varieties of rice! Overall, however, the vast majority of producers grow in the range of 1-5 varieties of food crops for which they produce planting material (91%). In fact, some of the ranges found here may reflect survey respondents reporting the number of crop species that they allow *to go to seed*, not necessarily the number of crop species from which they are *actively producing* planting material. Therefore, these results should be interpreted with care.

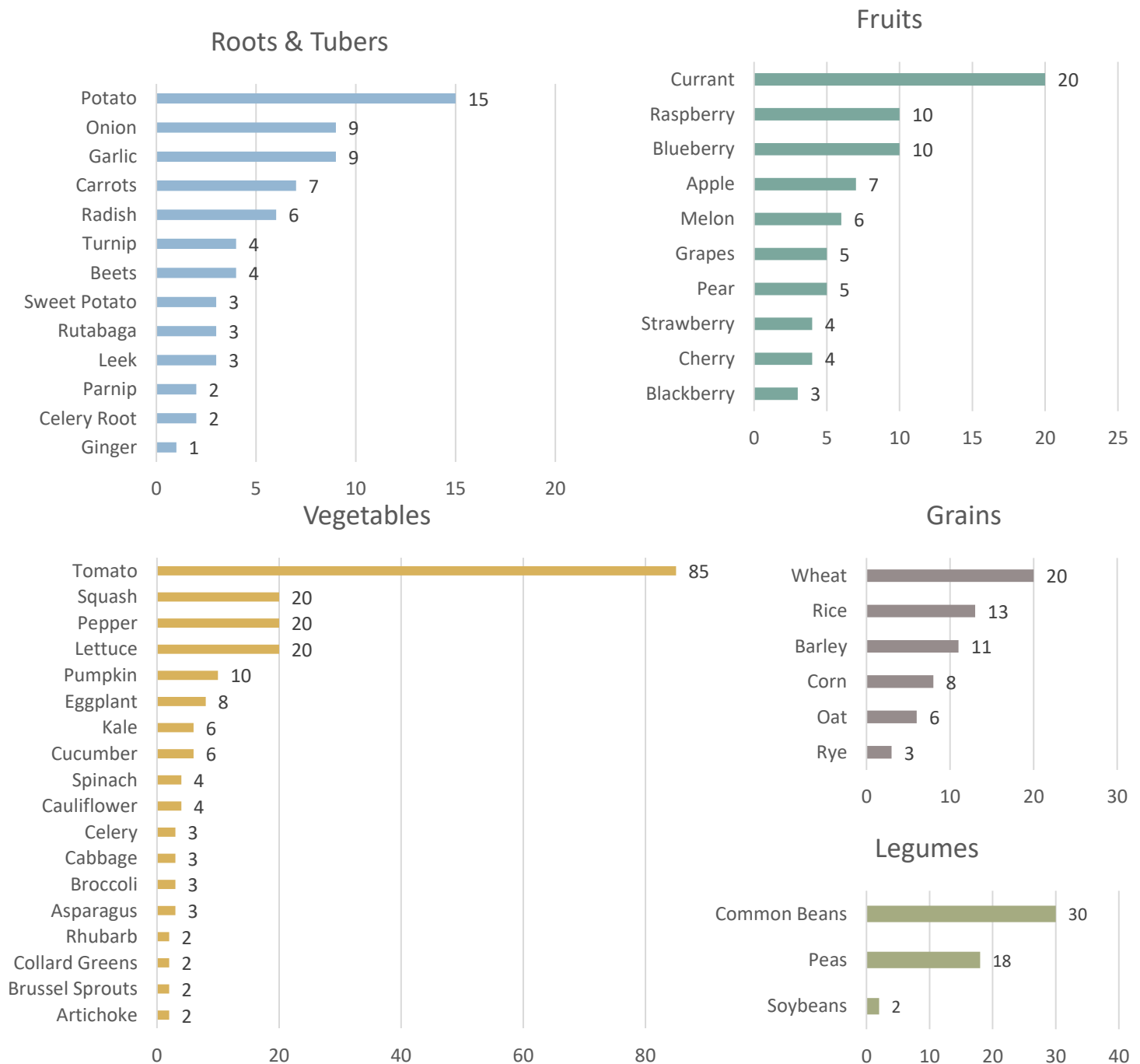


Figure 15. Maximum number of varieties reportedly being grown by respondents for planting material (n=149)

Note. Seven extreme outliers that could not be verified were excluded from these figures.

WHEN: Challenges to Production

To guide future efforts to support seed systems in Vermont, we asked respondents about the severity of challenges they face in their production of planting material and what challenges they anticipated facing in the future. Survey participants were asked to rate their level of concern for a series of challenges related to the environment, climate, economics, resources, and demographic and policy trends – both in 2020 and in 10 years (2030). Interestingly, seed producers in this survey reported few current challenges to production of planting material on average (Figures 16a & 16b). Of all the challenges presented, respondents only found “pests” (M=3.30), “lack of time” (M=3.08), and “disease” (M=3.02) to be somewhat challenging. Looking 10 years in the future, however, seed producers anticipated more challenges that might impact their production of planting material, particularly for climate and environmental considerations, such as “drought-like conditions” (M=3.65) and “loss of pollinator populations” (M=3.86; Figures 16a & 16b).

Challenges to Production of Planting Material

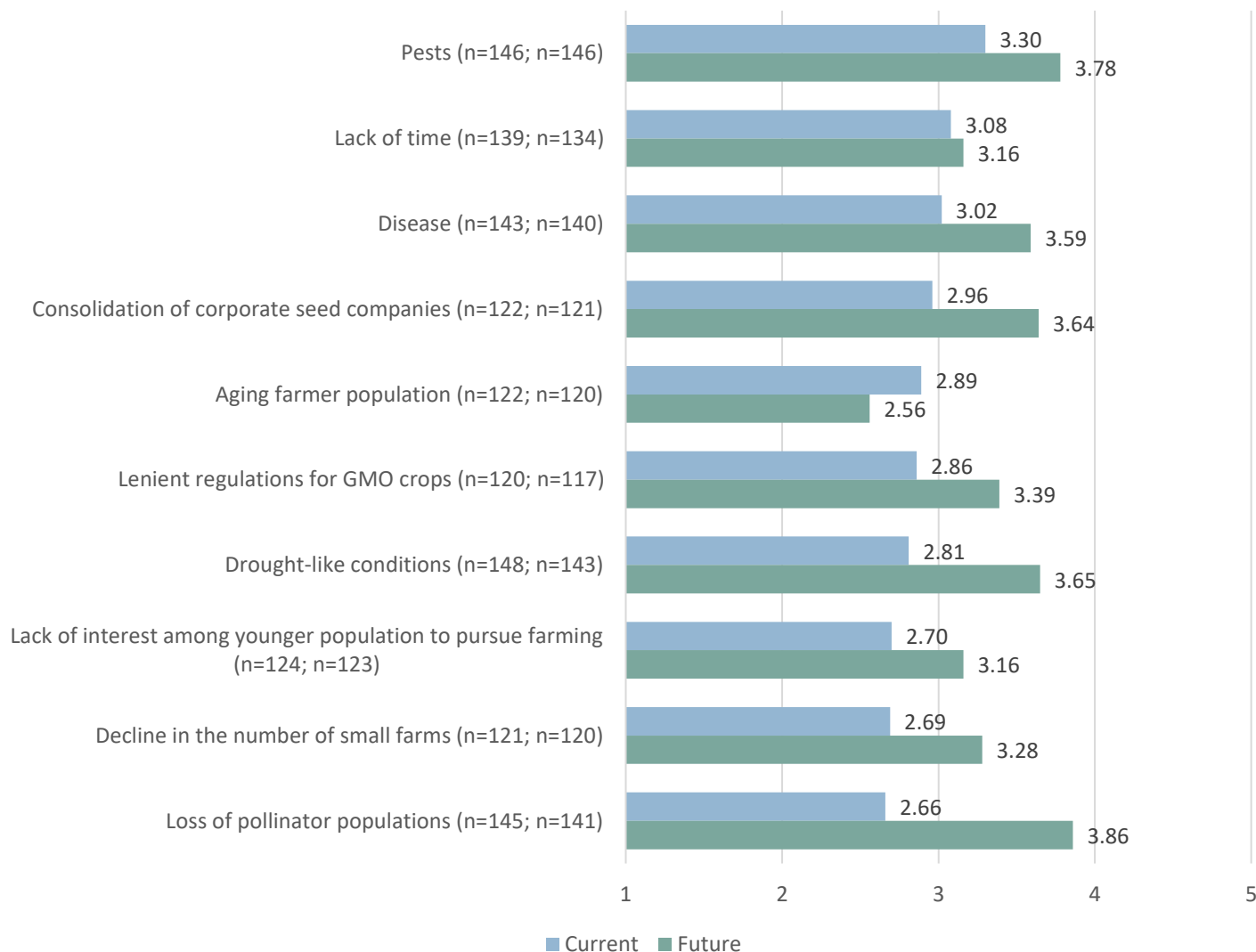


Figure 16a. Mean responses to challenges to production, both current and future

Note. First “n” number in parentheses corresponds to the number of responses to the challenge currently; the second corresponds to the number of responses to the challenge in the future. Means calculated on a scale where 1= Not a challenge at all, 2= Not challenging, 3= Neither not challenging nor challenging, 4= Challenging, and 5= Very challenging.

Challenges to Production of Planting Material (cont.)

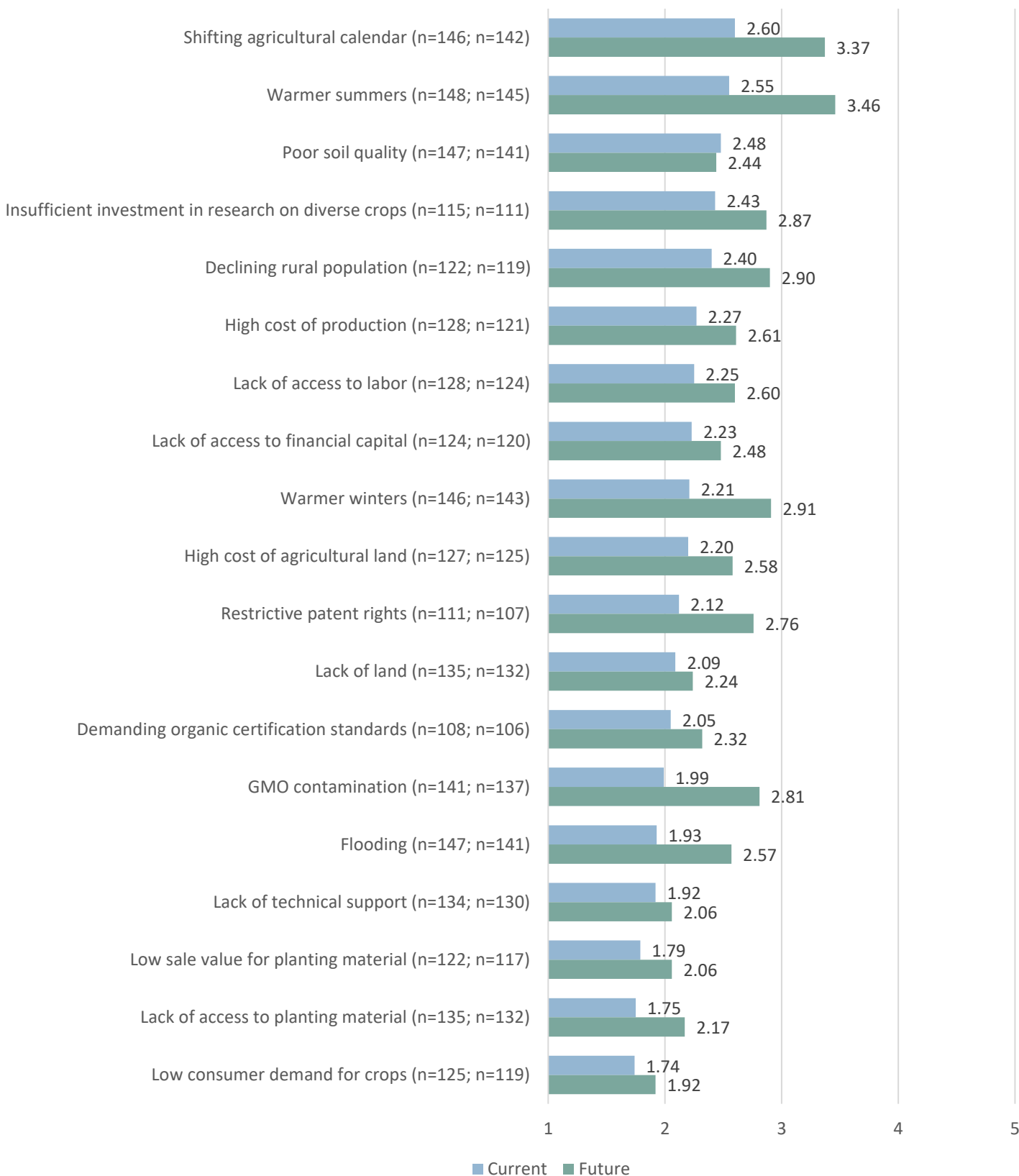


Figure 16b. Mean responses to challenges to production, both current and future, continued from Figure 16a

Note. First “n” number in parentheses corresponds to the number of responses to the challenge currently; the second corresponds to the number of responses to the challenge in the future. Means calculated on a scale where 1= Not a challenge at all, 2= Not challenging, 3= Neither not challenging nor challenging, 4= Challenging, and 5= Very challenging.

WHERE: Sourcing & Distribution

Seed producers in this study reported sourcing material from a variety of sources, both formal and informal³ (Figure 17). In terms of informal sources, 97% and 87% of respondents sourced at least some planting material from their own seed saving or other farmers/gardeners, respectively. In terms of other informal sources, 25% also sourced from seed libraries. For formal sources, 87% percent of respondents reported obtaining planting material from alternative seed companies, defined as businesses that sell planting material with diverse characteristics, including organic and heirloom varieties. In comparison, 63% reported obtaining planting material from

conventional seed companies, defined as large, often multinational, corporations that primarily sell high-yielding hybrid varieties or GMO planting material. Finally, 66% sourced some planting material from retail stores (hardware stores, grocery stores, etc.) and 28% sourced some planting material from an online seed exchange.⁴

Sourcing of Planting Material

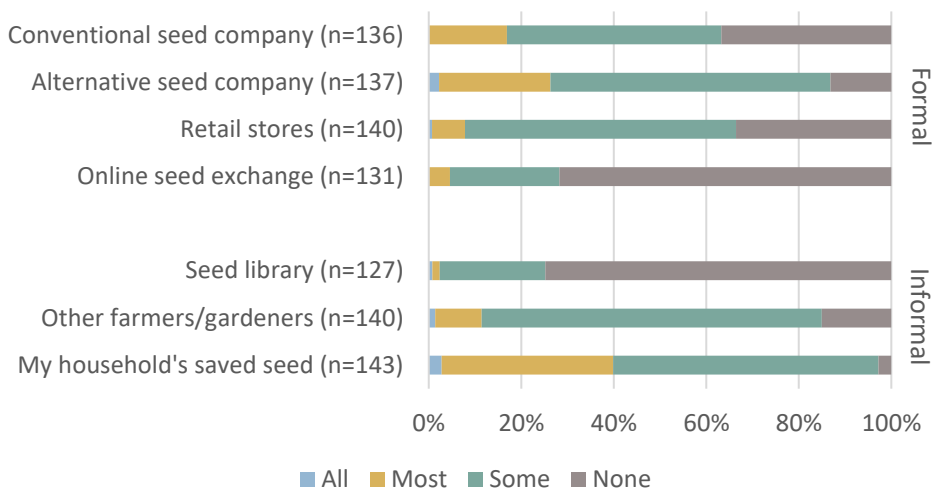


Figure 17. Percentage of respondents who sourced planting material from various sources

Distribution of Planting Material

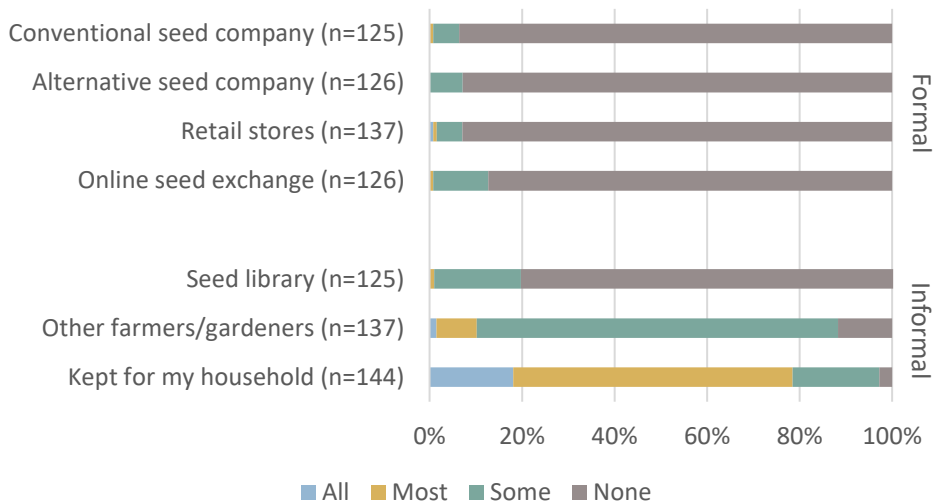


Figure 18. Percentage of respondents who distributed to various sources

Distribution of planting material was less prevalent overall, with 12% reporting that they keep *all* their planting material for their own household (Figure 18). However, 88% reported distributing at least *some* planting material to other farmers/gardeners, and 15% and 20% reported distributing some to online seed exchanges and seed libraries, respectively. Very few respondents reported distributing any planting material to the formal destinations of retail stores and alternative or conventional seed companies (<7%).

³ Formal seed systems are characterized by commercial seed companies and are marked by high degrees of regulation and uniformity. In contrast, informal seed systems are maintained by farmers and gardeners through unregulated and/or non-market exchanges of planting material.

⁴ We recognize that some exchanges through online platforms may be categorized as informal exchanges. However, as many of these exchanges go through organizations such as Seed Savers Exchange, we elected to categorize this source as formal.

We were also interested to explore the ways in which sourcing and distribution transactions occurred. We asked participants to indicate if planting material was gifted/donated, bartered, or purchased/sold. Unsurprisingly, planting material obtained from retail and seed companies was overwhelmingly purchased, while planting material from seed libraries, seed fairs, and non-profit organizations was more often gifted (Figure 19). Planting material obtained from other farmers/gardeners was most commonly gifted but was also bartered or purchased.

In general, planting material was distributed most commonly by gifting, with less than 10% reporting that planting material was purchased by another individual or organization in any category (Figure 20). Bartering was somewhat common only between farmers/gardeners (18%). Overall, more than 70% of respondents selected “N/A” for the distribution transaction questions, likely reflecting the lower numbers engaging in distribution of planting material versus the numbers obtaining planting material (<3% selecting N/A). Likely this number is impacted by the high percentage of seed producers that produce planting material for their own farms/gardens (89%; see page 4).

These data indicate that individuals across Vermont are engaging in both formal and informal systems of exchange, but utilize informal channels with regularity. This may be surprising to some, as the seed systems within the US are often characterized as highly dominated by conventional seed companies, especially in commercial farming. However, the data above (Figures 17-20) indicate that informal exchange is robust among participants in this study and lead us to wonder its prominence in other parts of the country where large-scale production of commodity crops prevails.

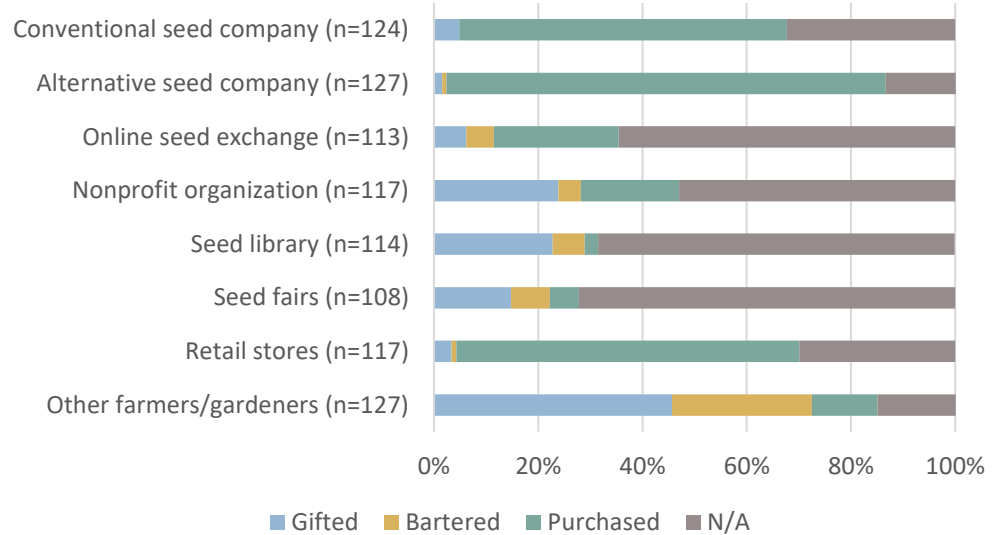


Figure 19. Respondents primary form of exchange by source

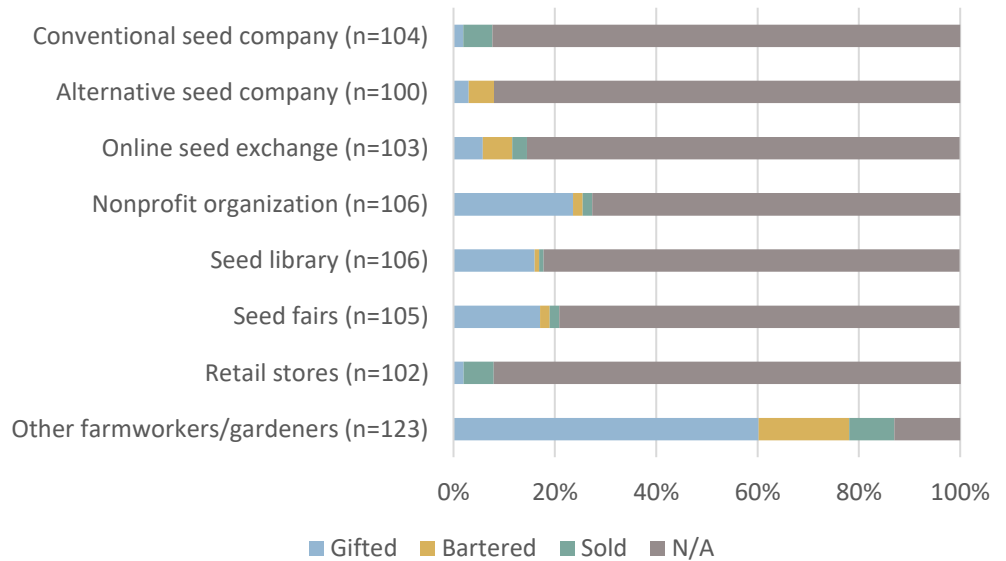


Figure 20. Respondents primary form of exchange by distribution destination

WHY: Motivations

To better understand what drives individuals to produce planting material, we asked respondents to indicate how important certain factors were in their decision to produce planting material. Respondents were most motivated by such factors as “producing food for home consumption” (M=4.78) and “producing planting material for my farm or garden” (M=4.69; Figure 21). In general, seed producers were motivated by a range of different factors, but rated economic factors, such as “make money” (M=1.94) and “market demand” (M=1.96), as the least important on average. Seed producers overall rated almost all

Motivations to Produce Planting Material

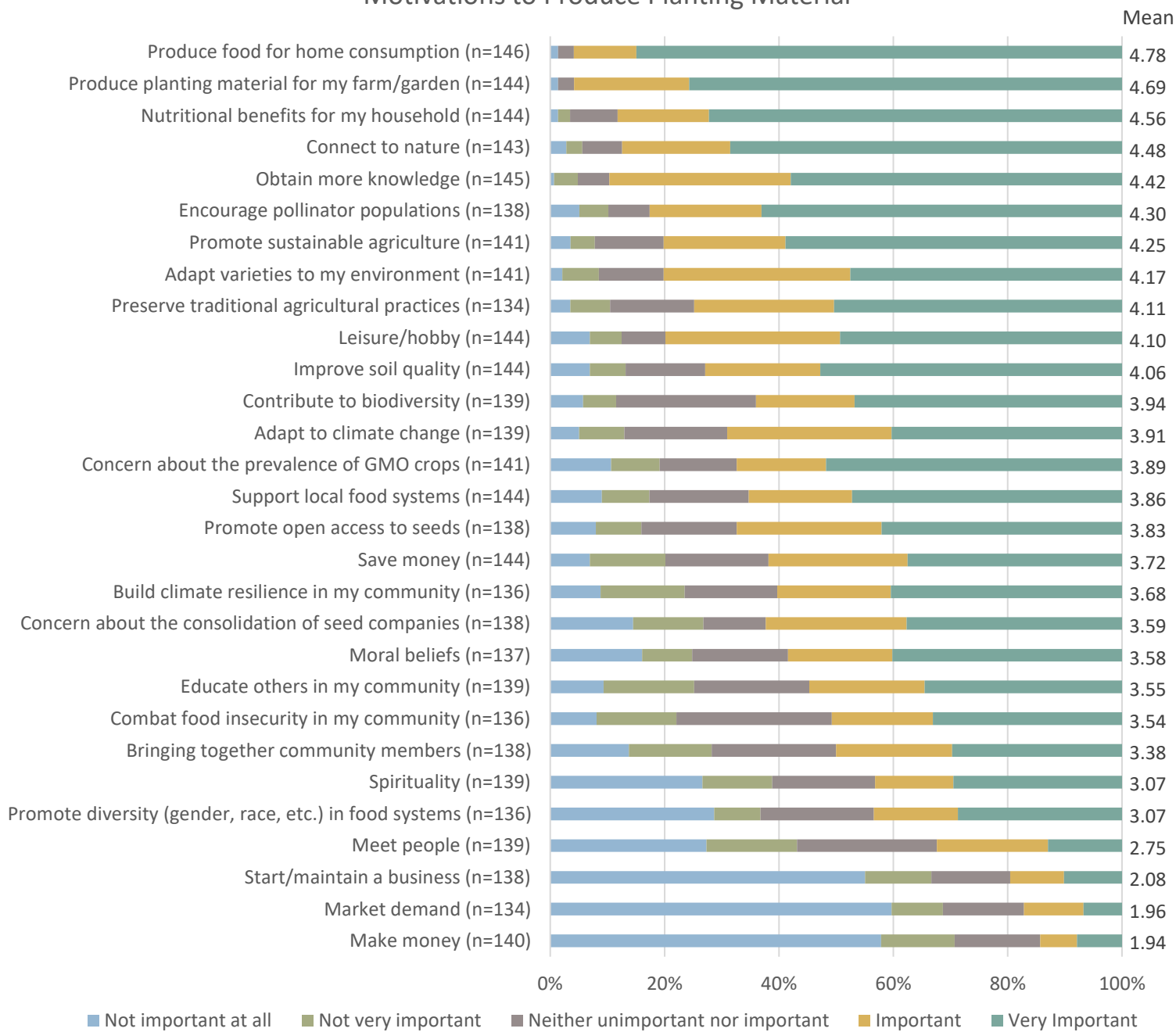


Figure 21. Motivations to produce planting material

Note. Bar graph shows the percentage of respondents selecting each response on the given scale of 1-5 where 1= Not important at all, 2= Not important, 3= Not important nor unimportant, 4= Important, and 5= Very important. Mean responses shown to the far right in the figure.

motivations as important, with only four motivations with mean scores less important than neutral (3 = “neither unimportant nor important”). Motivations around community engagement such as “educate others in my community” (M=3.55) and “combat food insecurity in my community” (M=3.54) did not rate as highly with respondents as personal and environmental motivations such as “nutritional benefits” (M=4.56), “connecting with nature” (M=4.48), “encouraging pollinator populations” (M=4.30), and “preserving traditional agricultural practices” (M=4.11).

Motivations to produce planting material were rated as “very important” or “important” by 50% or more of respondents for 23 of the 29 motivations (79%; Figure 21). Only three motivations (“start/maintain a business”, “market demand”, and “make money”) were rated as “not important at all” or “not very important” by a majority of respondents. This distribution of responses shows that seed producers in this survey were motivated by many considerations that relate to multiple dimensions of sustainability.

HOW: Conclusions and Next Steps

The findings of this survey provide a first glimpse into Vermont’s seed systems. While the data obtained from the survey cannot be generalized to the entire population of seed producers in the state, they nonetheless communicate critical information that help to inform future avenues for study and action.

Concluding Thoughts

The responses from survey respondents for this study indicate that their seed production in Vermont is undertaken by both non-commercial and commercial producers, men and women (although more so by women), and by individuals across the state of Vermont that tend to be white, older, educated, and of middle- or high-income classes. Additionally, among this sample, seed production seems to be undertaken most commonly as a hobby or leisure activity, with a small percentage growing for primary income (6%) or supplementary income (22%).

Seed producers rated most characteristics of planting material to be important, but rank economic characteristics as the least important overall. The majority of planting material produced was from open-pollinated or heirloom varieties, although almost 40% of respondents reported growing some hybrid varieties. Seed producers also maintained a high degree of crop diversity in their fields and gardens, with many growing a wide range of crop species and varieties, thus providing a vital service that contributes to local adaptation, climate resilience, and social and environmental wellbeing within the state.

Surprisingly, seed producers reported that they do not perceive many challenges to seed production currently. However, they do anticipate more challenges to their production in the future, particularly related to changing climate, weather, and environmental conditions. At the same time, we were surprised to find that some issues such as flooding were not perceived as a substantial threat to seed producers in the state, especially considering the intensified precipitation events that Vermont has faced in the last several years and will likely continue to face as climate change worsens. Furthermore, corporate consolidation of seed companies, lenient regulations on GMO crops, and decline in the number of small farms were rated in the top 10 challenges seed producers perceived both currently and in the future, suggesting that Vermont’s seed systems are threatened not only by environmental challenges, but by policy challenges that affect individuals’ ability to access the types of planting material they want. This highlights the complex nature of our seed systems, which are perhaps as influenced by abiotic factors as biotic.

In terms of sourcing and distribution, seed producers mainly produced planting material for their own garden, although the majority gift or barter some planting material with farmers/gardeners in their network as well. Most purchase planting material from seed companies or retail stores, but do not typically gift, sell, or barter planting material back to those companies. As discussed earlier in this report, this highlights the presence and importance of informal seed systems within the state.

Lastly, seed producers are motivated to continue maintaining crop diversity through regenerating planting material by a multitude of factors, but seem to be primarily driven by practical considerations such as producing food for home consumption, and saving planting material to be used in one's farm/garden. In contrast, economic considerations such as making more money seem to be less important. This suggests that numerous ways exist to support seed producers and encourage even more individuals to produce planting material. Additionally, increased attention to what motivates non-commercial seed producers is warranted and may provide further insight into the motivations that underlie decisions to produce planting material.

Moving Forward

In the future we hope to contribute to strengthening seed networks in Vermont through supporting individuals and groups that are passionate about seed systems. This may take many forms, including assisting with organizing meetings and/or meet-ups, providing educational or outreach material, or connecting beginning seed producers with more experienced individuals. We are also hoping to identify ways to link existing networks to synergize the efforts of various organizations, including seed-saving groups, seed libraries, and seed fairs/exchanges. As we do so, we will make explicit effort to ensure diverse voices, perspectives, and identities are represented and included. We are committed to continuing our research in this area and following up on questions raised by the findings of this survey.

We also want to let you know that there are several specific initiatives we have underway in which we hope you might participate. Given the tumult of Covid-19, we are currently conducting a study on disruptions in our regional seed systems and will likely be reaching out to the community in the coming months with another (shorter) survey. This survey will aim to better understand the impact of COVID-19 on seed systems and investigate ways to build resilience in our regional seed system.

We are also highly engaged in helping to plan this January's Northeast Organic Seed Conference (NOSC) in conjunction with the annual NOFA-NY winter conference. In support of this conference, we were recently awarded a grant by the USDA's National Institute of Food and Agriculture through their Organic Agriculture Research and Extension Initiative. More information about this project can be found [here](#). We are excited to be working with partners across the Northeast to organize this virtual conference focusing on technical aspects of seeds, promoting diversity and inclusion as we collectively build the regional seed community, and conducting a needs assessment to determine strategies to strengthen our region's organic seed systems. Please be on the lookout in the coming months about scholarship opportunities and more conference information. We hope you will join us in January 2021 at the NOSC!

Finally, we are also beginning to identify important regionally adapted crop varieties to store in UVM's new Crop Genetic Heritage Lab, which is part of the Consortium for Crop Genetic Heritage that is under the leadership of [Dr. Eric von Wettberg](#). Our plan is to store varieties that have important cultural heritage, potential for adaptation to climate change, are declining in prevalence, or have other valuable characteristics to ensure that these important varieties will persist in our region. Our goal is to develop strategies that ensure that these seeds are distributed back out to seed savers and producers to cultivate, but we need help in developing this initiative. We want to ensure that this initiative is done carefully, ethically, and in the spirit of building inclusive and diverse seed systems. To be clear, we view the work of growing varieties of crops in fields and gardens as the most essential work, and intend to freeze store varieties as a complementary insurance mechanism. In 2021, we intend to organize a conversation with seed system stakeholders across Vermont to plan this initiative, but, in the meantime, if you have any suggestions of specific varieties that you believe should be stored in the Center for Crop Genetic Heritage, please email us at uvmseeds@uvm.edu.

In general, we hope you will reach out with any questions, ideas, recommendations, or thoughts! We are excited to continue this work and are looking to you, as an expert in the production of planting material, to guide us. Please direct any correspondence to uvmseeds@uvm.edu.

Funding

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