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Production Planning for Aggregators

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Production Planning for Aggregators

Abstract

This 21-page guide is designed for aggregators—businesses and organizations that create a single sales outlet through which large-volume buyers can purchase products from several local farmers. This fact sheet reviews the basics of coordinated production planning, explains how aggregators operate, and suggests things to consider when getting started. Examples are included from other aggregators.

Disciplines

Agribusiness | Agriculture

Production Planning for Aggregators

A Guide to Aggregating Crop Production from
Multiple Producers to Serve Volume Buyers



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More resources available on the Leopold Center website: www.leopold.iastate.edu/cool_tools

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Production Planning for Aggregators

To help small farmers take advantage of more marketing opportunities, many different businesses and organizations around the country have begun **aggregating** local food from multiple producers. Aggregators create a single sales outlet through which buyers such as schools, institutions, or restaurants can purchase products from multiple local farmers. Aggregators are useful because they can help farmers sell their products on a wholesale basis to buyers who require a larger volume and a more diverse selection of food items than one small farmer can provide.

Aggregators can offer many additional services, such as help with marketing and branding, assurance of quality standards, providing an ordering system, grading or packing products, and delivery to the buyer. One of the most important things an aggregator can do is to **help farmers coordinate production planning** so that they can meet the buyers' needs. This fact sheet reviews the basics of coordinated production planning, explains how aggregators operate, and suggests things to consider when getting started.

Why is production planning a good idea?

- **It reduces risk for farmers.** Before they plant their crops or purchase livestock, farmers can be more certain that their timing and choice of crops will result in sales.

- **It reduces risk for the aggregator.** If the aggregator knows what it will have to sell, when, and in what quantities, it can do a better job of setting prices and managing costs.
- **It helps farmers fulfill a larger portion of demand.** If farmers have detailed information about what buyers want, they can expand production to meet the expressed needs.
- **It helps farmers with their financial planning.** Making production commitments in advance can stabilize a farmer's fiscal planning for the year. He or she will know when to expect cash to flow into the business.
- **It builds buyer relationships.** Buyers will be more interested in purchasing from a group of farmers if they know they will have a reliable supply of products. Also, engaging in a planning process with buyers can help them understand the limitations of the growing season, and might increase their commitment to buying local.

How does coordinated production planning typically happen?

Coordinated production planning often includes these steps:

1. **Talking with food buyers** to understand their total food needs over the course of the year: *what* they purchase, *what volume* they need, and *how often* they need it. This usually involves reviewing purchase records from the previous year, ideally with the buyer, to determine what did and did not sell well. It also requires learning what types or varieties of product are preferred by the buyer (e.g., a standard beefsteak-type tomato vs. a Roma or heirloom cultivar).
2. **Translating buyers' needs into planting quantities and schedules.** Based on the previous years' sales and meetings with buyers, organizers must create an annual calendar that predicts total product needs from *all* expected buyers or sales outlets, broken down by month and week. Also, if a buyer needs 100 lbs. of tomatoes per week, how many row feet or acres of a particular tomato cultivar are likely to be needed? How much acreage? To have the tomatoes ready on time, when should transplants be planted?
3. **Meeting with farmers** to fill the calendar with production commitments from individual farmers. Who can have high tunnel tomatoes ready in the first half of June? In the second half? Some aggregators prefer to bring together all of their farmers to discuss this as a group. Other aggregators prefer to meet with farmers one-on-one to discuss planting. An individual conversation with a farmer also might involve reviewing whether he or she met last year's production commitments, and providing advice as needed.
4. **Adjusting the plan** based on projected supply and demand. Once producers have made their commitments, and production needs for each week have been established, is it enough to meet the demand? If not, some producers may need to increase their production, or it may be necessary to recruit more farmers.
5. **Following up on farmer commitments** throughout the year, to make sure that products will be ready on time. Willie Lantz of Garrett County Growers says, "[Our] producers meet three to four times a year to evaluate the season and plan for production. The members are also in weekly contact with the coordinator for delivery information." Sometimes a drought, rainy spring weather or a pest outbreak might cause crops to run late or to fail. Or, a farmer may realize he or she can't produce what was promised. If an item is not going to be ready as planned, the aggregator must have a back-up plan to meet buyers' requirements.

- 6. Analyzing how things went** at the end of each year. Aggregators must keep detailed records so that they can compare the projected needs of their buyers with what was actually purchased. This encourages creation of a better demand forecast for the upcoming year. For future planning purposes, aggregators also pay attention to which farmers meet their production commitments.

Of course, each aggregator’s approach is different. Here’s how a few aggregators explained their processes:

Jim Crawford of Tuscarora Organic Growers (Hustontown, PA)

Each winter our production coordinator develops a production plan based on the previous year and on the database of sales. Our customized computer program, which we developed and refined over 25 years, tracks all sales and production data. This database guides our annual production plan development. Our experience over the years has been that buyers are always reluctant to project their needs in advance. They want to see products and prices as we offer them (twice weekly).

Each grower receives a very detailed list of crop commitments, with quantities, dates, etc. Any conflicts between growers are mediated by the production coordinator. It is understood that the cooperative makes no contracts with members but that there is a “good faith” agreement that members will make every effort to follow the plan, and the cooperative sales staff will make every effort to market what is produced.

Kathlyn Terry of Appalachian Sustainable Development (Abingdon, VA)

The Appalachian Harvest General Manager meets annually with all buyers to obtain weekly demand figures for all products. Demand is aggregated and then converted to plant populations and planting phases. In addition to discussing demand for the core group of products, each year, she helps them consider the potential for new products that can be grown specifically for a buyer.

Farmers are provided with an information sheet that documents the number of plants (by phase) required to meet existing demand. In the past we would host meetings of all growers and have a group discussion about who would grow what. We have moved away from this model and now meet one-on-one with farmers to help them customize a plan for their farm and life. We still share the information sheet referenced earlier but have found it beneficial to spend time with farmers individually rather than trying to do this in a group setting. A part of the process is an informal prediction of accuracy based on our history with a farmer (another benefit of one-on-one discussions). We do not require contracts with our farmers.

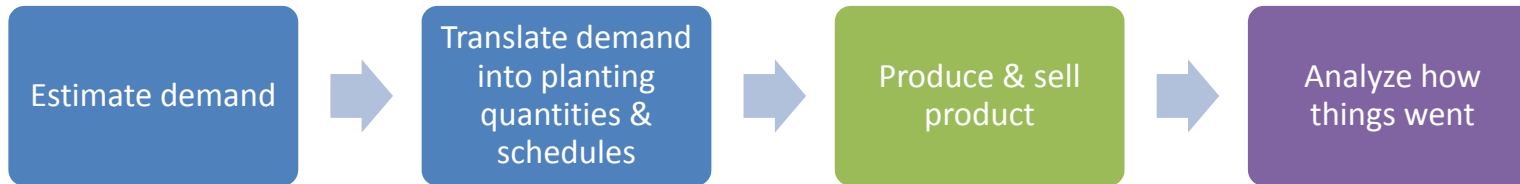
Production planning process for an individual grower



Planning season (usually winter)

Production season

End of season



Production planning process when coordinating production among multiple growers

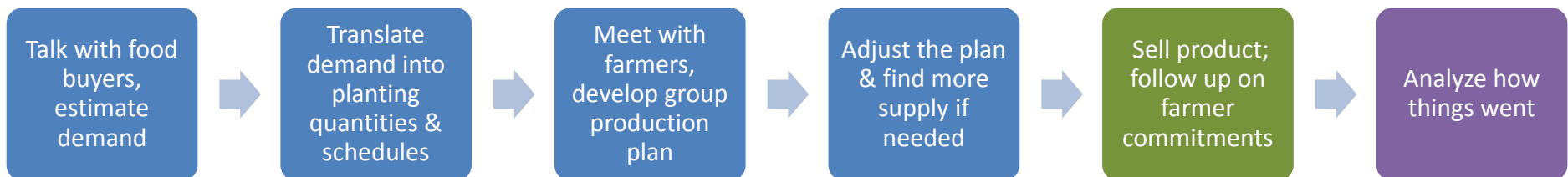
(In this case the demand estimate and production plan are developed at the group level and different quantities and crops in the production plan are allocated to different growers)



Planning season (usually winter)

Production season

End of season



Things to consider before coordinating production

Here are some questions to consider, and examples of how existing aggregators have addressed them.

How will we get started?

For a new aggregator selling a relatively small quantity of products, production planning efforts can be expanded gradually. Iowa Food Hub in Decorah, Iowa, which delivers aggregated food boxes directly to consumers in several cities, began by coordinating production for the winter season only. They discovered that they could purchase excess produce from farmers in the summer, but that if they wanted to be a consistent supplier of produce at reasonable prices in the winter, they needed to let growers know what they planned to purchase. Their production planning began with phone calls to farmers and handwritten notes on a desk calendar. Later, they created a more formal planning process.

Here are some things to consider when first starting out with production planning:

- Who are your customers? Individuals? Wholesale buyers? Can/have you discussed estimated weekly quantities and prices?
- Will you encourage producers to scale up production for specific wholesale buyers? For other specific markets?
- To what extent do you envision doing the following with your group:
 - Coordinating *which crops* farmers should plant,
 - Coordinating *how much* of different crops farmers should plant,
 - Coordinating *when* farmers will plant crops, in order to assure steady supply, or
 - Requiring farmers to commit to producing specific products in specific quantities (via contract or agreement)?
- Do you have a general sense of customer demand for different products? Is it based on historical sales or on conversations with buyers? Where else can you obtain information about potential demand?

What will the planning process look like -- will we plan with farmers individually, or prepare our plan in a group setting?

Crafting the production plan in a group setting can help build commitment and relationships. Willie Lantz of Garrett Growers says that group planning meetings have “helped get people to work together, to think differently.” This may be especially useful for an aggregator in its initial years of operation, when farmers are still learning to trust how the production planning works. However, individual conversations between an aggregation manager and each producer allow privacy for the producer, and the opportunity to troubleshoot individual production challenges. Over time, a number of aggregators have moved away from a group planning structure and toward individual meetings. A significant investment of time is needed to meet with farmers individually; for Tuscarora Organic Growers, this process is spread out over five months each winter.

See the sample charts that Appalachian Sustainable Development used to record its buyer demand (in Appendix A) and grower commitments (in Appendix B).

Here are some factors to consider when deciding how to create your production plan:

- How would you describe your group dynamics? Do people generally get along, or are there tensions or territoriality issues?
- Will people display territorial behavior over certain crops or be reluctant to divide up production?
- Will growers be more likely to over-commit or under-commit in a group setting?

- What do you know about the reliability of your growers in terms of a) follow through on commitments, and b) skill/ability to produce?
- What factors may affect the ability of your producers to grow a given quantity or type of crop? (Consider the following: farmer experience, equipment, proximity to aggregation sites or drop-off points or buyers, production history, commitments to other marketing outlets, etc.)
- Do you have a coordinator who has time to meet with growers individually?
- How will final decisions about the production plan be made? Is there a manager who could be given that authority, or will it be up to your members or board?

How can we help our producers with their own planning?

In order to be part of successful group production planning, some farmers may need to become more comfortable scheduling their own production to meet harvest deadlines. Aggregators should consider whether their farmers will need additional consultation or training to help with planning. Local Extension staff, regional planting calendars (like this one from West Virginia University Extension: anr.ext.wvu.edu/garden_calendar) and the knowledge of experienced farmers may be useful here.

Here are some resources that show farmers how to create planting schedules:

- Fact sheet from ATTRA, the National Sustainable Agriculture Information Service: <https://attra.ncat.org/attra-pub/summaries/summary.php?pub=20>
- Templates from North Carolina State University Cooperative Extension: <http://growingsmallfarms.ces.ncsu.edu/growingsmallfarms-farmrecords/>
- Free interactive tools and calculators from Johnny's Seed Catalog: <http://www.johnnyseeds.com/t-interactive-tools.aspx>
- *AgSquared*, a for-profit site that helps individual producers plan and track their own production with farm maps, recordkeeping aids, and more: www.agsquared.com

Johnice Cross, former coordinator of GROWN Locally in Clermont, Iowa, observed that crop rotation was a factor in each farm's production plan. "As producers rotated their crops every year, their room for certain crops changed and had to be adjusted," she says. "In other words, the supply changed for items for each producer every year."

How do we convert consumer demand information (e.g., pounds of tomatoes) into quantities of plants?

This is a tricky question that requires detailed information about predicted yields for each fruit or vegetable, by acre or row foot. Local sources such as farmers and Extension agents may be the best places to find yield predictions. Some existing aggregators have compiled spreadsheets of yield information that they may be willing to sell to other groups, but be aware that this information will vary greatly for different climates and growing zones, even within the same state.

If yield predictions are not available, the aggregator or another local service provider may want to ask growers to collect this data firsthand. In Iowa, the Leopold Center for Sustainable Agriculture gave a grant to a statewide farmers' association to collect detailed planting and yield information from growers across the state. Farmers were paid to track their yields and supply this data for a statewide database. The database will be helpful for aggregators and growers who need to do production planning.

How will we organize all the information about projected purchases, actual purchases, farmer commitments, and actual farmer production, so that we can make our plan and track our progress?

Aggregators have created their own tracking systems using various combinations of commonly used software such as Excel, QuickBooks, and a subscription-based recordkeeping tool called Smartsheet (www.smartsheet.com). Examples of demand forecasting and production planning Excel spreadsheets from Appalachian Sustainable Development are attached. However, some aggregators report that they eventually had to invest in more complex software that can automatically analyze their sales data and generate reports. The authors identified two examples of ready-made software for coordinated production planning that would be possible options for aggregators seeking more sophisticated software programs:

- **Local Food Marketplace**, which was still beta-testing its production planning tool and planned to release it in Fall 2014 (<http://localfoodmarketplace.com>, Contact: Amy McCann, amy@localfoodmarketplace.com).
- **Celeriac 3.0**, which is owned by Tuscarora Organic Growers (<http://www.tog.coop>, Contact: Jim Crawford, jim@newmorningfarm.net).

Both programs are (or will be) available for purchase. The Local Food Marketplace software has the advantage of being integrated with an online sales platform, so that aggregators can take orders, view year-end sales data, and plan next year's production using the same software.

When keeping records, coordinators should consider what information will be helpful in next year's planning process. For example, Johnice Cross says of her work with GROWN Locally, "I kept [records of] overages of items that I couldn't sell and shortages of what I could have sold each delivery, this was helpful when meeting with both buyers and producers." Records of the per-unit prices charged to each buyer also are important, so that next year's prices can be estimated.

For an aggregator that is buying and reselling products, having a production plan is very important because the aggregator can use projected prices and product sales to estimate gross margin¹ for the upcoming year. The gross margin tells the aggregator what percentage of its sales revenue will be left after paying producers. If the gross margin is too low to cover the costs of aggregation, including things like staffing, trucking, warehousing, etc., the prices or product mix may need to be adjusted to allow for a higher margin. If the aggregator is going to pay more for season-extended products (such as hothouse greens) than for mid-season products, this should be taken into consideration when making price projections and gross margin calculations. To manage any seasonal variations in product cost, it may even be worthwhile to predict gross margins for each month of the year.

Factors to consider when choosing a planning and recordkeeping system:

- What questions do we want to be able to answer with our planning and recordkeeping system?
- How tech-savvy are our coordinators, and what software do they know how to use?
- Should we invest in a professional planning and recordkeeping system? If not, how time-consuming or expensive would it be to switch to a new system later on?
- Once we have sales data, how easily can we analyze it? For example, if we are taking orders using a web-based ordering system, how easily can we access year-end sales data in a way that allows planning for next year?

¹ Gross margin = (Total sales revenue – Cost of goods sold) ÷ Total sales revenue. Cost of goods sold is the amount paid by the aggregator to the producers for their products.

How will we ensure product quality and food safety?

Most aggregators ensure product quality through a combination of written standards, training events, and product inspections. A sample grower's manual for cooperative members of GROWN Locally, covering food safety, post-harvest handling, and grading standards, can be seen at <http://www.leopold.iastate.edu/pubs-and-papers/2011-10-growers-manual>. Some aggregators adopt the U.S. Department of Agriculture (USDA) grading standards, which are searchable by product at <http://www.ams.usda.gov/AMSV1.0/Standards>. In addition to written standards, USDA provides visual aids to which growers can compare their product for grading purposes. Providing inspection to assure quality is very important. Even Red Tomato, a large Massachusetts-based local foods broker that has moved away from owning trucks and warehouses, makes sure that its staff routinely visits delivery points to inspect product.

The assurance of food safety is very important for aggregators, requiring careful planning and monitoring, and will not be fully addressed in this guide. The following resources may be helpful:

- General information on Good Agricultural Practices and Good Handling Practices (GAP/GHP) from USDA: <http://www.ams.usda.gov/AMSV1.0/HarmonizedGAP>
- List of other manuals and resources including food safety resources for aggregators: <http://www.ams.usda.gov/AMSV1.0/FoodHubs>
- Tools for individual growers to develop food safety manuals: <https://onfarmfoodsafety.org/>

Good Agricultural Practices and Good Handling Practices (GAP/GHP) serve as the national standard for microbial food safety in produce. The USDA's Agricultural Marketing Service supports a program that audits farms and facilities in order to verify that they comply with GHP/GAP. While GHP/GAP certification is voluntary from the federal government's point of view, more and more wholesale buyers are requiring that the sources of their produce be certified. As a result, many aggregators require or encourage their producers to participate. The traditional form of GHP/GAP certification used for individual farms or food handling facilities requires the farm or facility to create a food safety plan, maintain records of compliance, and undergo on-farm food safety audits. In 2014, USDA began piloting a "Group GAP" program that enables aggregators to take a more active role in helping farmers become certified, by shifting some of the administrative burden on to the aggregator. See the USDA website cited above for more information.

How will we decide what products we offer?

Conversations with buyers are the first step to deciding on a product mix. Different buyers are interested in different products, from "old standard" items like green beans and tomatoes to specialty items like pac choi or purple carrots. Likewise, different growers are willing to grow different things. Part of the production planning process involves determining which cultivars will be planted for which buyer. "I always tried to coordinate the producers to use the same variety of a vegetable, so that when I was short from one producer, I could get the same variety from another producer. This was especially important for grocery stores for consistency," said Johnice Cross of her work with GROWN Locally.

Whenever an aggregator begins offering a new item not previously grown, there is a risk that the item will not turn out as expected. There also is the risk that no one will want to buy a new, unfamiliar item. Local Food Hub in Charlottesville, Virginia took an interesting approach to managing its mix of conventional/established products and unusual/experimental offerings. After talking with buyers, they developed categories for their offerings:

- "Market Crops," which included core offerings such as slicing tomatoes.

- “**LFH Signature Crops,**” which were unique crops grown just for Local Food Hub.
- “**Development Crops and Trial Products,**” which were trial crops and new items for which they had seen demand. Only specific growers were involved in growing these.
- “**Opportunity Crops,**” which were crops grown for specific buyers, based on an agreement that the buyer would buy a specific quantity.

This system helped LFH to develop new product lines while reducing the risk of growing new cultivars or lesser-known crops.

Here are some things to consider when thinking about which products to offer:

- What items do you know you can sell?
- What items are your farmers most comfortable producing?
- Do you have a sufficiently diverse product mix? Are there products or cultivars customers want that are not being produced? Who is willing and qualified to experiment with these?
- Will you source “staple” items or varieties from more than one grower to guarantee availability?
- Will you coordinate production for all of your products or will some items be sold on an *ad hoc* basis?
- If farmers are currently producing an excess of any particular product, how will you handle that situation? Will you divide it up among multiple growers, stagger plantings, or try to find more markets for that product? Will you ask some growers of that product to try something different?

Common challenges and how to approach them

Aggregators face challenges that can make production planning difficult. Here are some of the most common ones, along with suggestions on how to deal with them.

- **Producer experience and reliability.** This often is cited as a challenge because it interferes with the reliability of the food hub in delivering on its promises to buyers.

What to do? To manage this risk, some aggregators assign a “tier” to each farm based on that farm’s track record of reliability, number of years working with the aggregator, and general farm experience. When it’s time to plan production for the next year, the more reliable, upper-tier farmers are given first priority for crop assignments, while newer farmers may be invited to fill in production gaps that appear later, as the coordinator finishes the production plan. For fairness and transparency, it may be helpful to have a written policy describing how grower priority will be assigned. (An example from Western Montana Growers Association is in Appendix C.)

Aggregators can provide support to help growers improve, through group discussions, trainings, or individual consultation. For example, GROWN Locally, a farmer cooperative in Clermont, Iowa, matched their less experienced farmers (secondary growers) with farm mentors (primary growers) to help improve production. Also, when working with a new producer who was growing something he or she had never grown before, the cooperative always tried to have marketing outlets available for lesser-grade produce.

Things to consider:

- Who will take ultimate responsibility for making sure commitments to buyers are fulfilled?
- How will you track progress on crop commitments?
- Will you be able to source product elsewhere if a given producer does not follow through? Who will be responsible for doing this, and for communicating updates to buyers?

- How will you support growers who need help with production?

- **Buyer commitment.** They may be willing to predict next year's orders, and they may offer a verbal commitment to purchase certain items, but small buyers willing to sign purchasing contracts seem to be rare. This creates uncertainty because even if the farmers honor their production commitments, the buyer may decide not to purchase the items offered.

What to do? Aggregators should have a back-up plan for selling excess produce such as a buyer who is flexible, a farmers market, or an aggregated Community Supported Agriculture (CSA) enterprise. If prices have to be reduced for negotiating purposes, the aggregator should determine ahead of time whether farmers will accept this. Local Food Hub in Charlottesville, Virginia sets a target minimum price on its products. However, LFH staffers say experience has shown that in times of a glut, farmers are more concerned with selling the product than with following minimum price guidelines. Aggregators also can devise plans to manage risk in advance, based on what they know about their buyers' reliability. Jim Crawford of Tuscarora Organic Growers says: "The long history we have in working with these buyers allows us to know the level of confidence we can have in their predictions and their commitment to following through."

In lieu of a legal contract, some buyers may be willing to sign an informal agreement stating that they plan to buy the items listed in the production plan. In Tennessee, Nashville Grown collects a signed Memorandum of Agreement from its buyers as well as its growers (see examples in Appendices D and E). Similarly, Luther College in Decorah, Iowa, which operates a local sourcing program for its cafeteria, provides its own version of an "intent to buy" document for producers at the beginning of the year. These kinds of advance agreements make it easy for buyers to place "standing orders," or orders which will be filled repeatedly on a weekly or monthly basis without needing further direction from the buyer. Standing orders provide predictability and can therefore ease the production planning process, for both the buyer and the aggregator.

Things to consider:

- How confident are you that your customers will actually buy the amount they project or estimate?
 - Do you have other markets where you could potentially sell products if the markets you've planned for buy less than expected? What are those other options?
 - What is the price range for your products and how much will that change? Where can you obtain pricing advice locally? *(Most aggregators do not rely on nationally published pricing data to set their prices. But, some do ask their buyers for sample price lists from conventional food distributors such as Sysco for comparison purposes. Most aggregators do not try to compete on price with conventional wholesalers. They emphasize the superior freshness and quality of their local products and set their prices accordingly.)*
 - Will you try to obtain purchasing agreements with your buyers?
- **Farmers selling "around" the aggregator.** Some aggregators have challenges with farmers who produce the product as planned, but decide at the last minute to sell it via another outlet that offers a better price. If this prevents orders from being filled reliably, it can be the "death knell" for the aggregator, because unreliable supply can mean lower prices. Farmers who try to sell directly to the aggregator's customers, after initially selling through the aggregator, present another kind of challenge.

What to do? Kathlyn Terry of Appalachian Sustainable Development emphasizes that for producers to follow through on their commitments to the aggregator, the aggregator must meet their needs. She

says: “One of the best ways to grow a producer base is to ensure that your reputation for paying in a timely manner and taking care of their needs is very strong. Connecting with a few key growers also builds trust and allows producers to have more confidence in your ability to support them.”

Garrett Growers, a growers’ cooperative in western Maryland, has an agreement with growers that prohibits sales to the same buyers to which the cooperative sells. Tuscarora Organic Growers also forbids such sales. Jim Crawford of TOG points out that “our principle is for growers to be more profitable... we talk to growers who want to [sell directly to our customers] and tell them that even if they get higher price, it will cost them more.” This is because the individual grower will not be eligible for the same economies of scale in marketing and distribution that the growers’ cooperative enjoys. Also, over time, cooperative members have developed feelings of trust and commitment towards each other, which helps prevent them from doing things that would hurt the cooperative.

Things to consider:

- Where else are your producers selling and why might they want to keep selling to those markets?
- Are they willing to commit to producing certain levels of certain crops for the aggregator?
- Will you prohibit your growers from selling directly to the aggregator’s customers?
- Will you ask your producers to sign an agreement stating that they will fulfill their production commitments to you?

By anticipating these possible challenges and discussing them ahead of time, especially with producers, aggregators can reduce some of the risks of their business.

Appendix F offers a summarized list of questions for aggregators to consider as they develop their approach to production planning. The list can be used as a guide for individual consideration or for group discussions about how to begin coordinating production.

Additional Resources

National Good Food Network (<http://ngfn.org/resources/food-hubs>) Look in the NGFN Webinars section for an excellent recorded webinar on coordinated production planning.

USDA AMS: Food Hubs (<http://www.ams.usda.gov/AMSV1.0/FoodHubs>) Includes numerous publications and resources for local food aggregators. Click the “Resources for Food Hubs” link.

Leopold Center for Sustainable Agriculture (http://www.leopold.iastate.edu/cool_tools) Useful tools related to market information and producer decision-making, including a growers manual for cooperatives.

Value Chain Cluster Initiative (<http://www.vc2.org>) For producers, aggregators and distributors working in 17 targeted counties of West Virginia, this program can provide funding to help develop production planning templates, food safety plans, business plans and more.

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www.vc2.org

www.leopold.iastate.edu

www.extension.iastate.edu/topic/local-foods

The Leopold Center for Sustainable Agriculture seeks to identify and reduce adverse socioeconomic and environmental impacts of farming practices, develop profitable farming systems that conserve natural resources, and create educational programs with the ISU Extension Service. It was founded by the 1987 Iowa Groundwater Protection Act. The Leopold Letter is available free from the Leopold Center at 209 Curtiss Hall, Iowa State University, Ames, Iowa 50011-1050; (515) 294-3711.

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Appendix A: Buyer Demand Chart

**Appalachian Harvest
Large Volume Buyer
Crop Demand and Acreage Requirements by Crop**

Crop	Size	Buyer 1	Buyer 2	Buyer 3	Buyer 4	Buyer 5	Buyer 6	Buyer 7	Total Boxes Per Week	Yield Per Acre/Wk	Wkly Total Div. By Yield/Acre	x # of Plantings or Selling Weeks	Total Acres
Sugar Snap Peas	10#	25		20	350		10	90	495	200	2.5	1.0	2.5
Red Slicers	20#	50	100	64		50	75	80	419	275	1.5	2	3
Red Grape Tomatoes	12 pint flat	160	50	120		50	50	180	610	400	1.5	2	3
Sun Sugar Tomatoes	12 pint flat	25	50		50		15	180	320	400	1	2	2
Roma Tomatoes	20#	100	50	64		50	20		284	275	1	2	2
Heirloom Tomatoes	10#		75	50			60	80	265	250	1.25	2	2.5
Green Bells	1 1/9 bu	60	50	100		50	30	60	350	225	2	2	4
Cucumbers	1/2 bu	45	60	160		50	75	80	470	200	2.5	4	10
Picklers	1/2 bu	30							30	225	0.1	4	0.4
Green Zucchini	1/2 bu	35	60	160		50	80	100	485	300	1.5	4	6
Golden Zucchini	1/2 bu	25	50	160	50	30	40	100	455	300	1.5	4	6
Eggplant	1/2 bu	15	25	75	50	35	30	30	260	255	1.25	2	2.5
Butternut	1 1/9 bu	25	30	50			30	30	165	500	0.5	12	6
Acorn	1 1/9 bu	25	20	50			20	25	140	500	0.4	12	5
Delicata	1 1/9 bu			20			15	15	50	500	0.1	8	1
Sweet Dumpling	1 1/9 bu						15	15	30	500	0.1	8	0.75
Watermelons	3 count	25	50	32			20		127	1500	0.1	8	1
Seedless	6 count	25	75	32	200	40	25		397	1000	0.5	8	4
Cantaloupes	6 count	25	50	56		56	50	30	267	1000	0.3	8	2.5
Leaf Lettuce	24 count	40	200	42		50	40	80	452	800	0.6	8	4
Romaine	24 count	25	25	35		50	60	50	245	800	0.3	6	2
Cabbage	15 count			55		35		100	190	1000	0.2	8	1.5
TOTALS ----->		760	1020	1345	700	596	760	1325	6506				71.65

Appendix B: Producer Commitment Chart

Appalachian Harvest
Crop Production Commitments by Grower (ABRIDGED SAMPLE)

Grower Name	Roma Tom.	Roma Tom.	Carm	Carm2	Pepper	Pepper 2	Eggplant	Eggplant2
Planting Date	May	June	May	Jun	May	Jun	May	Jun
Britton								
Coalson					3000			
Gillespie								
Gingerich						4000		
Honeycutt								
Horton	2500	2500			10000	10000	2500	
McNaughton			3000		3000			
Moore		400						
Nichols				2000				
Robbins								
Schrock								
Smythe								
Souther								
Wheeler								
Widener								
Wynn								
Yoder								
Total	2500	2900	3000	2000	16000	14000	2500	0
Target	7,500	7,500			12,000	12,000	3,000	3,000

Appendix C: Example of a Crop Hierarchy Policy

Courtesy of Western Montana Growers Association

1) Crop Availability Due to Increased Demand

If at the beginning of the season projections show an increase in demand for a particular crop past producers with commitments to that crop first get the chance to increase production proportionate to their previous commitment percentage (i.e. someone who had a commitment to 70% of a crop should be able to retain that percentage and absorb the increased demand with each grower retaining their overall percentage).

2) Crop Availability due to Producer Drop

Should a grower drop a certain crop, growers that currently share the commitment to that crop will be able to absorb the increased availability of said crop based on their current percentage of production.

3) Open Market Lottery System

If after current growers have either accepted or declined the option to increase their commitments and there is still crop availability then that crop will be opened to all interested Co-op members using a lottery system. This would also include crops that have not been previously offered to Coop growers. The number of growers pulled to share the crop would be determined by the staff based on the total crop availability in order to limit the total number of growers and attendant logistical issues. The number of growers pulled would need to be split between experienced growers (3+ years membership) and new growers (<3 years membership).

To insure that interested growers are aware of new crop availability during the annual commitment process growers will also submit a list of crop that they are currently not growing but would like to grow so that they can automatically be entered into the pool.

4) Decreased Demand

If there is a lack of sales with a certain crop, then all the growers of that crop will share in the reduction of sales based on the percentage of that crop that they had committed to.

5) Certified Organic, Homegrown, and Conventional Produce Designations

Growers will commit produce based on their respective certifications. The Co-op staff will market produce according to customer's preferences (i.e. some customers require only Certified Organic produce, while others will accept Homegrown or conventional produce). If a store does not have a preference then the staff will market produce evenly.

6) Leave of Absence

We recognize the challenges of being in this business and would like to offer our members the option of taking a one-year leave of absence while still maintaining their commitments. To hold their membership they would need to pay the base membership fee for the year. This leave of absence can only be used one time during a farm's membership with the Co-op. This leave may be taken for any reason, but must have prior approval of Co-op staff. If a grower wishes to step back for further years this needs to be approved by the board and General Manager. Please note that the Statement of Cooperation is still in effect during the leave of absence.

During the year's leave the grower's commitments will be distributed to alternate growers with the understanding that the crop will be given back to the original grower the following season if that grower so chooses. If said grower does not return the following season then their crops will be permanently distributed.

7) Crop Rotation

If a farmer, during certain years of crop rotation, need to drop a crop to accommodate rotation, their dropped crop will be distributed to an experienced grower for the year, and then returned to the original grower the following year. Co-op management must be involved in the decision.

8) Lack of Commitment Fulfillment

If a grower consistently fails to meet their commitments for reasons of: poor planning, bad quality, or general grower error, their commitment and potential crop reassignment will be subject to reviewed by the Staff and potentially the board.

If a grower did not grow their crop successfully because of weather, disease, bad seed, general factors that are out of their control, the commitment is still theirs for one more year, at the discretion of the General Manager. After two years, if the commitment was not met successfully then the crop is available for reassignment.

Appendix D: Sample Memorandum of Understanding (for Buyers)

Courtesy of Nashville Grown

Barring unexpected changes in management structure or financial situation, RESTAURANT NAME will purchase the following items from Nashville Grown at the listed quantities, prices, and on the listed dates, provided that the quality standards and other conditions below are satisfied. Payment will be made within 15 days of receipt.

Nashville Grown will source the following items from farms within 100 miles of Nashville and provide them at the listed quantities, prices, dates, and quality standards, unless prevented by crop failure or other unexpected change in a farm's ability to produce the below items.

Item	Price	Quantity	Farm	Quality Specifications	Pickup Days	Date Range
Lacinato Kale	\$25	10 lbs	Bountiful Blessings	Kale will be bunched in bunches of appx 1 lb weight, packed in Nashville Grown yellow stack and nest containers, and kept in cold storage until pickup. Leaves will be dark green, unwilted, 6-10" in length, and with an average of two or fewer holes per bunch. Grown using organic methods. Leaves will be washed and dried.	Every Sunday	1/1/14 to 5/15/14

Appendix E: Sample Memorandum of Understanding (for Farmers)

Courtesy of Nashville Grown

Barring adverse crop failure, adverse environmental conditions, or unexpected changes in management structure or financial situation, FARM NAME will grow the following items to sell through Nashville Grown at the listed quantities, prices, and qualities, and on the listed dates. If FARM NAME encounters any difficulties, they will notify Nashville Grown immediately. Similarly, Nashville Grown agrees to deliver these items to the listed buyer, and will notify FARM NAME immediately of any changes in the quantities desired by the identified buyer, and endeavor to find a replacement buyer.

Item	Price	Quantity	Buyer	Quality Specifications	Pickup Days	Date Range
Lacinato Kale	\$20	10 lbs	Silly Goose	Kale will be bunched in bunches of appx 1 lb weight, packed in Nashville Grown yellow stack and nest containers, and kept in cold storage until pickup. Leaves will be dark green, unwilted, 6-10" in length, and with an average of two or fewer holes per bunch. Grown using organic methods. Leaves will be washed and dried.	Every Sunday	1/1/14 to 5/15/14

Signature of Nashville Grown

Date

Signature of Farm

Date

Appendix F: Coordinated Production Planning: Master List of Questions to Consider

Prepared by Leopold Center for Sustainable Agriculture

How will you get started?

- Who are your customers? Individuals? Wholesale buyers? Can/have you discussed estimated weekly quantities and prices?
- Will you encourage producers to scale up production for specific wholesale buyers? For other specific markets?
- To what extent do you envision doing the following with your group:
 - Coordinating *which crops* farmers should plant,
 - Coordinating *how much* of different crops farmers should plant,
 - Coordinating *when* farmers will plant crops, in order to assure steady supply, or
 - Requiring farmers to commit to producing specific products in specific quantities (via contract or agreement)?
- Do you have a general sense of customer demand for different products? Is it based on historical sales or on conversations with buyers? Where else can you obtain information about potential demand?

What will the planning process look like – will you plan with farmers individually, or prepare your plan in a group setting?

- How would you describe your group dynamics? Do people generally get along, or are there tensions or territoriality issues?
- Will people display territorial behavior over certain crops or be reluctant to divide up production?
- Will growers be more likely to over-commit or under-commit in a group setting?
- What do you know about the reliability of your growers in terms of a) follow through on commitments, and b) skill/ability to produce?
- What factors may affect the ability of your producers to grow a given quantity or type of crop? (Consider the following: farmer experience, equipment, proximity to aggregation sites or drop-off points or buyers, production history, commitments to other marketing outlets, etc.)
- Do you have a coordinator who has time to meet with growers individually?
- How will final decisions about the production plan be made? Is there a manager who could be given that authority, or will it be up to your members or board?

How can you help your producers with their individual planning?

- Will you provide planning templates? Offer mentorship with experienced farmers? Training sessions?

How will you convert consumer demand information (e.g., pounds of tomatoes) into quantities of plants?

- What sources of this information can you use?

How will you organize all the information about projected purchases, actual purchases, farmer commitments, and actual farmer production, so that we can make our plan and track our progress?

- What questions do we want to be able to answer with our planning and recordkeeping system?
- How tech-savvy are our coordinators, and what software do they know how to use?
- Should we invest in a professional planning and recordkeeping system? If not, how time-consuming or expensive would it be to switch to a new system later on?
- Once we have sales data, how easily can we analyze it? For example, if we are taking orders using a web-based ordering system, how easily can we access year-end sales data in a way that allows planning for next year?

How will you ensure product quality and food safety?

- Will you inspect product? Adopt grading standards? Provide a post-harvest handling guide or training?

How will you decide what products to offer?

- What items do you know you can sell?
- What items are your farmers most comfortable producing?
- Do you have a sufficiently diverse product mix? Are there products or cultivars customers want that are not being produced? Who is willing and qualified to experiment with these?
- Will you source “staple” items or varieties from more than one grower to guarantee availability?
- Will you coordinate production for all of your products or will some items be sold on an *ad hoc* basis?
- If farmers are currently producing an excess of any particular product, how will you handle that situation? Will you divide it up among multiple growers, stagger plantings, or try to find more markets for that product? Will you ask some growers of that product to try something different?

How will you deal with uncertainty about producer experience and reliability?

- Who will take ultimate responsibility for making sure commitments to buyers are fulfilled?
- How will you track progress on crop commitments?
- Will you be able to source product elsewhere if a given producer does not follow through? Who will be responsible for doing this, and for communicating updates to buyers?
- How will you support growers who need help with production?

How will you deal with uncertainty about buyer commitments?

- How confident are you that your customers will actually buy the amount they project or estimate?
- Do you have other markets where you could potentially sell products if the markets you’ve planned for buy less than expected? What are those other options?
- What is the price range for your products and how much will that change? Where can you obtain pricing advice locally? *(Most aggregators do not rely on nationally published pricing data to set their prices. But, some do ask their buyers for sample price lists from conventional food distributors such as Sysco for comparison purposes. Most aggregators do not try to compete on price with conventional wholesalers. They emphasize the superior freshness and quality of their local products and set their prices accordingly.)*
- Will you try to obtain purchasing agreements with your buyers?

How will you ensure that farmers meet their commitments and avoid having farmers sell “around” the aggregator?

- Where else are your producers selling and why might they want to keep selling to those markets?
- Are they willing to commit to producing certain levels of certain crops for the aggregator?
- Will you prohibit your growers from selling directly to the aggregator’s customers?
- Will you ask your producers to sign an agreement stating that they will fulfill their production commitments to you?