

Optimal Nitrogen Fertilizer Management for Pumpkin Production in Virginia Virginia Polytechnic Institute and State University

Nitrogen fertilizer is difficult to manage in all vegetable production systems as numerous pathways are readily available to “lose” nitrogen; which decreases a farmer’s overall fertilizer use efficiency. Current Virginia Cooperative Extension recommendations for pumpkin were based on conventional crop production systems and offer no guidance for farmers utilizing no-tillage or cover crops; which is the predominant system used by most pumpkin growers. Objectives for this study include: 1. Update Virginia Cooperative Extension nitrogen fertility recommendations for pumpkin production in Virginia; 2. Determine if conservation tillage or high residue cover crop practices increases need for more N fertility in the Commonwealth. Additions of organic matter can significantly impact plant available N; 3. Establish in-situ nitrogen guidelines for petiole nitrate concentrations and develop total leaf N guidelines for Virginia pumpkin growers; and 4. Provide Extension support for growers developing and improving their pumpkin fertility programs. We will initiate two field trials (Ridge and Valley in Montgomery County and Coastal Plain in New Kent County) to test nitrogen response of pumpkins to fertilizer in high-residue cover crop systems. Petiole nitrate calibration curves and leaf tissue nitrogen at different growth stages will be correlated with yield to develop in-season nitrogen tests for producers.

Transitioning Small, Medium and Large Scale Specialty Crop Farmers from USDA GAP Certification to the Harmonized Audit Appalachian Sustainable Development

VDACS provided ASD with grant funding in 2010 and 2011 to support the dissemination of Good Agricultural Practices (GAP), Good Manufacturing Practices (GMP) and Good Handling Practices (GHP) training to farmers in the region. Both years of the project have gone very well resulting in many farmers across VA becoming USDA GAP certified. The purpose of this current request is to continue this project for another year to assist farmers in transitioning from USDA GAP certification to the Harmonized Audit.

Harmonized GAP was designed to replace the 10 to 15 different GAP audits that are currently accepted by wholesalers in the produce industry. The plethora of audit alternatives can be a significant burden to farmers, particularly those who sell their products to multiple buyers with varying audit requirements. While harmonizing these audits is an excellent goal and could help farmers significantly over the long term, it will take considerable effort to create and implement a transition plan that small, medium and large scale farmers can adopt.

ASD will work with VA Cooperative Extension to create a training curriculum based on the new Harmonized Audit requirements, deliver the training to farmers in the region, conduct mock audits, and coordinate group audits.

Development of a Value-Adding and Agricultural Processing Facility in SW Virginia Sustain Floyd Foundation

This project will undertake pre-construction development of a food processing center in Floyd County, Virginia based on the successfully completed feasibility study for the project previously funded by the SCBGP-FB. A Lead Project Developer will be hired to administer and coordinate this

phase of facility development. The center will serve to aggregate, process, store and package locally grown fruits and vegetables, then market and distribute the products to regional buyers including institutions, college cafeterias, Farm-to-School programs, grocery stores and restaurants. The facility will serve specialty crop farmers serve by allowing them to add value to their own product at the facility on a shared-use basis as well as connecting them with food entrepreneurs actively seeking locally-grown, sustainably-farmed food that meets their unique requirements. This will in turn provide infrastructure to access institutional buyers. The facility will create a reliable purchasing partner fostering sustainability of existing farmers and encouraging new growers and new specialty crop production. Development of a value-adding food processing facility would complement and enhance other aspects of a comprehensive local food system developing in the region around Floyd.

Virginia Wine Online Virginia Wineries Association Cooperative:

Virginia legislation enacted in July 2010 (Virginia Code 4.1-209) allows for a collective electronic wine marketing portal for Virginia wineries – when those wineries are incorporated as an agricultural cooperative venture. This new legislation coupled with the need to increase retail wine sales and the predicted growth in online sales open an entirely new market for Virginia wines.

In response to this legislation, the Virginia Wineries Association surveyed its membership to determine the potential use of a wineries cooperative. Of the 63 winery respondents, over 96% indicated their interest in a Virginia wine industry co-op. Of that total interest, 77.6% of respondents believed they would use an e-commerce wine marketing site. In answer to this clear mandate, the Virginia Wineries Association incorporated the Virginia Wineries Association Cooperative (VWAC) on May 27, 2011.

The first project of the VWAC is to establish an electronic wine portal through Virginia Wine Online. On behalf of Virginia's over 200 farm wineries and 300 viticulturalists, Virginia Wine Online will increase individual winery and producer income and ensure the sustainability of the Virginia wine industry.

Benefits and Potential Drawbacks of Neonicotinoid Insecticides on Vegetable Crops Virginia Polytechnic Institute and State University

Because of their systemic properties, which enable their use as seed treatments and soil drenches, and their relatively low mammalian toxicity, neonicotinoids have become the most widely-used class of insecticide in the world. In recent years they have also been highly scrutinized for their potential role in honey bee decline. This has sparked a need for clearer knowledge on the benefits and potential drawbacks of using these insecticides in vegetable crops. Neonicotinoids such as imidacloprid, thiamethoxam, clothianidin, and dinotefuran may still offer the most sound chemical control option for vegetable growers in certain situations, such as for the control of the invasive brown marmorated stink bug, which has arisen as one of the most important tree fruit and vegetable pests in the mid-Atlantic U.S. More information is needed on the residual field efficacy among the different neonicotinoids as well as their impact on non-target pests and natural enemies.

Specific objectives are to:

1. To determine the residual field efficacy of various soil-applied neonicotinoids for controlling the brown marmorated stink bug in fruiting vegetables.

To assess potential non-target effects of soil-applied neonicotinoid insecticides on natural enemies in the vegetable agro-ecosystem.

Virginia Wineries Commonwealth Quality Alliance Virginia Wineries Association

The Commonwealth Quality Alliance (CQA) is a quality standards initiative of the Virginia Wineries Association that works to reward and promote Virginia-grown wines. The three primary objectives of the CQA are to:

- 1) Assist wineries to continuously improve the quality of Virginia wines by employing “best practices” in wine testing and evaluation.
- 2) Enhance Virginia wines’ competitiveness nationally and internationally.
- 3) Increase individual producer’s income and ensure the sustainability of the Virginia wine industry.

With Specialty Crop Funding through VDACS, the Virginia Wineries Association established the CQA in 2011. This initial project phase included developing and finalizing the CQA program structure, legal work, developing CQA logo and website, developing winery systems, research and selection of appropriate testing laboratories, winery education, initial membership development, and the first phase of CQA testing which approved 35 Virginia wines.

Virginia Wineries Association will utilize 2012 Specialty Crop Funding to design and implement a marketing strategy which will ensure the long-term viability and effectiveness of the CQA program. This marketing strategy will target three key user groups of the CQA: Wineries, Consumers and the Restaurant and Retail Trade.

Phase III , Marketing Expansion Initiative Promoting Virginia Grown Christmas Trees Virginia Christmas Tree Growers Association

VCTGA is seeking to build upon our successes as we implement those actions described in the FY 2010 and FY 2011 USDA Specialty Crop Competitive Grants. Beyond those actions addressed in the past two grants, we propose to alter our course and aggressively establish a presence at Agritourism Festivals and other similar public events in order to expand our presentation to all customers.

The proposed project, Phase III, Marketing Expansion Initiative Promoting Virginia Grown Christmas Trees, consists of mutually supporting activities that will expand the relationships between growers and all buyers, further educate both groups and promote the sales of not only Christmas trees but other Virginia grown and/or produced specialty products.

In addition to our annual meetings, we intend to sustain the winter meetings in order to share marketing experiences from the most recent holiday season. Secondly, we plan to refine our new website and delve into social networking as a means to both communicate among the membership and market our trees. And lastly, we propose to purchase promotional items (stickers, pencils, refrigerator magnets, calendars) that identify and promote our trees and greens at public agritourism events.

**Investigating the lifecycle of ripe rot of grape caused by *Colletotrichum* species.
Virginia Polytechnic Institute and State University**

Ripe rot, which is caused by two pathogens *Colletotrichum acutatum* and *C. gloeosporioides*, is not a newly emerging disease for VA; in fact, there is a record of a fungicide field trial in VA in 1888. However, it is often considered a relatively minor disease for wine grape production, probably because we did not know this disease could cause major damages. In 2010, there were several growers in VA who lost more than 30% of their potential crop due to this disease. Also, a recent study found out that only 3% contamination of these pathogens could alter flavor of wine. Moreover, these pathogens can cause diseases on apple (bitter rot), strawberry (anthracnose and crown rot), and other small fruits. Although there are extensive studies done on this pathogen, surprisingly, there is very limited information available for the interaction with grape. In order to investigate this important pathogen, we would like to propose to conduct 1) inoculation assay to distinguish the critical infection window and conditions, 2) fungicide tests to identify potential management tools, 3) inoculation assay to proof that they can infect woody (non-green) tissues, and 4) transformation of this pathogen in order to visualize their infection process.

**Enhancing the Managerial Skills and Competitiveness of Virginia Strawberry Growers
Virginia Department of Agriculture and Consumer Services**

Plasticulture strawberries are expensive to grow but can be profitable with good management practices. This proposal will help Virginia growers achieve greater profit with plasticulture strawberries by extending the length of the harvest season with improved weather management practices. Failure to protect the crop from frost/freeze events during bloom, as well as unseasonably spring weather, can shorten the harvest and sales period to 2½-3 weeks. Without a 4-5 week harvest season, strawberry plasticulture production is only marginally profitable. Growers could greatly benefit from having timely, accurate weather forecasts and crop management guidance. In January 2011, Dr. Barclay Poling, launched a strawberry plasticulture production/weather management advisory service with SkyBit, Inc. The *Strawberry Plasticulture E-Advisor*, serves to “translate” weather forecast information from SkyBit’s Strawberry Canopy Forecast, into actionable, preventive measures (using row covers and/or sprinkler irrigation). Approximately 80 Virginia plasticulture farms, will be provided a subscription to this advisory service, and receive daily "SkyBit" *E-Weather forecasts* for their location from February 1 – May 31. Two Pre-plant Meetings will be held in August, 2012. Grant funds will be used to assist with a 2013 Virginia Winter Strawberry School allowing growers to key in on crops issues and strategies for a profitable 2013 season.

**Financial Viability of Grafted Tomatoes
Virginia Association for Biological Farming**

Fresh tomatoes provide the highest percent of sales income for most small sustainable farmers, yet most tomato research in Virginia is done on the Eastern Shore, focused on large commercial growers. Because soil borne diseases restrict the amount of tomato production due to decreased plant vigor and shortened lifespan, and conventional production methods like the use of synthetic chemicals and soil fumigation are not options for organic farmers, we propose to study the financial viability of using grafted tomato stock. Now that vigorous rootstock seeds are commercially available and several research projects have studied the benefits, VABF farmers want to know if this is a viable

production method for them. Is the use of grafted tomato rootstock worth the extra time and cost for small sustainable farmers in Virginia?

Six farms spread throughout the state will perform field trials to find out. They will plant 300 tomato plants, half on grafted stock, the other half not, and record the productivity, market sales, and costs for raising each. The results will be disseminated through the VABF website, at two or three major farm conferences on the East Coast, and through our extension service.

Prince William Regional Beekeepers Queen Rearing Group Prince William Regional Beekeepers Association

The Prince William Regional Beekeepers Association's (PWRBA) Queen Rearing Project will establish local queen-rearing operations to improve and retain honeybee health and productivity, increase the number of regionally adapted queen bees produced locally, and decrease dependence on imported package bees. The project will rear queen bees using breeder stock, utilize specialized equipment to facilitate production, track success during the process, and assess queen bee performance to select queens most adapted to the regional environment. The project proposes to establish regional queen-rearing operations with multiple mating apiaries in order to maintain genetic diversity and take advantage of the geographical dispersion of drone bee congregation areas necessary for queen mating. The project will provide queens and/or queen cells to its' members, prioritizing those who use their own bees to make overwintered nucleus colonies (nucs) to increase the number of local bees with regionally adapted queens for sale to beekeepers decreasing dependence on imported package bees to replace colony losses and/or increase apiaries. The project will include a core group of members with established apiaries who have mastered initial queen rearing skills as well as the assistance of expert field consultants who will help in each aspect of the project.

Taking Direct Marketers to the Next Level with Technology Mini-Grants and Educational Workshops Virginia Farmers Direct Marketing Association

Direct marketing of agricultural products has grown to meet the needs of small- to medium-size family farms looking to sustain the farm and preserve farmland. Selling directly to the end user provides the farmer with more money for his products. Direct marketing also meets the needs of the local community, providing consumers, restaurant chefs and retail stores with a source of fresh product. The desire for fresh, safe and flavorful farm products has heightened, due in part to food borne illness outbreaks nationwide. Advocates of buying locally feel having a relationship with the farmer means fresher, safer food. The proposal includes cutting edge marketing training for the VFDMA Board of Directors and Executive Director. In order to carry out the organization's mission, training must be a priority. The membership would greatly benefit in the future. Along with this is a need for Board of Directors' liability insurance, which would protect everyone involved in this project proposal. This project is a three-pronged approach:

1. Foster the growth of direct farm marketers by offering ten (10) technology mini-grants over the course of two (2) years in the amount of \$1,000 each. Grants will be awarded based on an application process and will be specifically for website/social media development and/or branding. Ten (10) total grants will be awarded.

2. Develop an all-day workshop/conference specifically dedicated to marketing. Workshop series will help build the reputation of the organization as the “go to” one-stop shop for all things marketing.
3. Offer two (2) \$1,000 grand prizes to random workshop participants to have a one-on-one session with website developer/marketing strategist/marketing expert to work with producers to analyze their businesses and assist in making improvements where necessary.

**Improve sustainable beekeeping in Virginia through development of genetically superior queen bees, creation of queen rearing program and educational outreach
Norfolk Beekeepers**

Over the past few years, due to disease and pests, the total US Honey Bee population is down to a 50-year low. These devastating losses have captured the repeated attention of the national media. This attention has led to a greater interest in beekeeping, resulting in a 35% increase in the number of beekeepers in the past four years. In the meantime, Virginia remains dependent on imported bees, continuing to spend money on bees from other states that pose substantial risks through the inadvertent introduction of Africanized Honey Bees (AHB) or virulent strains of diseases and pests. A successful path forward toward sustainable apiculture as this market experiences such dramatic growth must include several elements, foremost of which is a local queen rearing program. This project will accomplish the following: 1) develop queen bees that are locally acclimated, gentle, resistant to disease and pests, and excellent honey producers and pollinators via selected and Varroa Sensitive Hygiene (VSH) queen stock, 2) develop queen bee instrumental insemination capabilities, 3) successfully distribute these superior, local queens and collect data to measure performance, 4) provide education to new, and intermediate beekeepers on hive management and queen rearing.

**Preparing Specialty Crop Farmers to Enter the Institutional Market through Education, Outreach, and GAP Training
Local Food Hub, Inc.**

Local Food Hub will prepare specialty crop farmers to enter the institutional market through an integrated education and outreach campaign consisting of hands-on sustainable agriculture workshops, farm visits, wholesale crop instruction, and food safety/post-harvest training (including GAPs).

Opportunities to obtain these skills are not always available to small-scale and limited resource farmers in our region, yet institutional demand for specialty crops is high. Training is necessary for farmers to maintain a competitive edge and increase wholesale market access.

Local Food Hub will provide these learning opportunities – available to our partnering farms and the general public -- through an integrated approach of classroom education, in-the-field training, and collaboration.

Local Food Hub has been granted the use of a 75-acre, certified organic vegetable farm in Albemarle County. This resource will serve as the “home base” for our educational workshops, and as a demonstration facility for specialty crop production, Good Agricultural Practices, and sustainable/organic farming techniques.

Improving Vegetable Crop Production Virginia Pumpkin Growers Association

Education has always been and will always be a driving force with anything one seeks to accomplish. It is the goal of the Virginia Pumpkins Growers Association through grant funded assistance to initiate a series of annual grower meetings. These meetings will be open to all growers within the far-reaching areas served by the Southwest Virginia Farmers' Market. These meetings will educate growers with the latest information on seed varieties, pesticides, fungicides, disease control, food safety regulations, labor issues, risk management, industry trends, etc. These meetings will also allow growers an opportunity to be informed of the newest marketing and distribution concepts. The information gained by the Southwest Virginia Farmers' Market at these meetings will give a consensus of the upcoming production seasons by crop and allow for further marketability of the specialty crops and increase farmer revenues. It is our belief that these meetings will enhance the competitiveness of specialty crops and strengthen the agricultural economy as a whole.

Use of Haygrove to Manage Weed, Insect Pressure, Disease and Soil Fertility in "Virginia-Grown" Organic Strawberry Farms Virginia State University

The biggest challenge faced by organic growers and conventional producers of strawberries in Virginia is how to grow healthy, tasty, aesthetically pleasing and economically sustainable barriers that will pass public scrutiny and/or earn certification. The use of Heygrow high tunnel creates a microcosm that could offer an opportunity to the farmer for a better management and control of insect, disease and weed pressures, which are natural culprits for reducing yield and berry quality. It is highly recommended that producers use natural predators to control insects and natural products to control diseases in strawberry bushes, albeit synthetic chemicals are available for conventional farming. Cultural practices such as crop rotation and fallowing offer better control of weeds, pests and diseases. Moreover, use of organic materials and composted farm waste are preferred amendments that supply both nutrients and organic matter to the soil. This project proposes to demonstrate that Haygrows provide effective means of growing profitable strawberries by reducing pests and weeds. For comparison purposes, the same variety of strawberries will be grown in open field applying conventional farming practices. Virginia State University will partner with farmers in strategically located areas within the state to setup similar structures for the benefit of local growers.

Increasing Sales and Production of Ornamental Gourds in Virginia Virginia Pumpkin Growers Association

Each year there is a growing demand for gourds to sell along with pumpkins and other fall decorations. As a specialist with Virginia Cooperative Extension I receive several comments each year that we need more gourds. Also, there is increasing interest in the use of gourds for painting, birdhouses, long term decorations, etc. Again, I had growers contact me wanting to know where to find seed of certain varieties and how to grow them so that the gourds had thick enough walls to use. There is interest in producing more gourds in Virginia and there is demand for this product. With this in mind the objective of this proposal is to conduct trials to increase production, quality and sales

of ornamental gourds in Virginia. The goals of this project would be to increase gourd production by 10% and gourd sales by 10% over the next 2 years.

Linking Farmers with Consumers in the Washington, DC Region Arcadia Center for Sustainable Food and Agriculture

The Arcadia Center for Sustainable Food and Agriculture seeks \$5,000 to support the development of a Food Hub that will act as a physical link between small, Virginia farms and the Washington, DC metro public by providing logistical assistance and education on the economic benefits of sustainable agriculture. Through the Food Hub's initiatives, Arcadia will help to promote and support low-resource, Virginia farmers, as well as distribute fresh local food to schools, restaurants, nonprofits, and retail businesses.

The Arcadia Food Hub will increase farmers' economic viability, expand the production of sustainable, small-scale agriculture in the National Capital region, and provide the public with access to healthy, local food.

The Food Hub will also provide new food system jobs and create a great deal of attention to the issues of local food, sustainable agriculture, and sustainable food systems.

Hops Planting Cost-Share Program Nelson County

There are currently 40 commercial craft breweries in Virginia, with more entering the marketplace each year. Increasing interest in locally grown ingredients has created a new opportunity for a new specialty crop in Virginia: hops. While the opportunity is great, barriers to market entry are high, specifically establishment costs. The first year of hop production is front-loaded with costs and labor, with significant production not seen for two to three years. A one-acre hop yard requires approximately \$15,000 to \$18,000/acre in material costs alone.

The goal of this grant is to reduce this barrier by creating a targeted cost-share program to reimburse growers for 75% of qualified hops yard material establishment costs. To target only serious producers, the minimum cost share request will be for one-third acre (or equivalent) blocks of hops (approximately 1,100 rhizomes or 360 hills).

Specialty Hard Cider Apple Varieties Planting Cost-Share Program Nelson County

A 2011 Specialty Crop Grant, administered by Nelson County, studied the economic feasibility of producing specialized hard cider apple varieties for use in making high quality hard cider. That grant specified that a second round of specialty crop funding would be sought to assist in establishing orchards for these specialized apple varieties.

The purpose of this grant is to increase the planted acreage of the specialized hard cider apple varieties used to produce high quality hard cider. It will accomplish this by providing a 50% cost-

share, done on a reimbursement basis, to individuals and businesses in Virginia incurring qualified expenses related to the establishment of orchards producing specialized hard cider apple varieties. The project goal is to support the planting of ten (10) acres of specialized hard-cider apple varieties planted in Virginia (estimated acreage of these apples currently in production is approximately 1-½ acres).

Education and demonstration of high tunnel fresh market vegetable production for small farms and the community.

Eastern Shore Resource Conservation and Development Council

In an effort to increase its fresh produce distribution, the Foodbank on the Eastern Shore, a branch of the Foodbank of Southeastern Virginia (Foodbank), has established an on-site community garden. While many community gardens only provide seasonal produce to participants, the introduction of a high tunnel would work to extend the growth of seasonal produce. The Eastern Shore Resource Conservation and Development Council proposes partnering with the Foodbank and Virginia Tech to utilize this unique opportunity to develop a demonstration high tunnel system within the community garden at the Foodbank that will not only feed Eastern Shore families struggling to put food on the table but also serve as a model for increasing small scale farm efficiency and to increase local food markets. Yearly farmer field days, educational events and extension publications will all be used to reach potential small scale growers. Successful implementation of our proposal will create a local model for increasing awareness and value of home gardens, educate potential farmers of the feasibility for establishment of high tunnel systems on small scale family-farms, and garnish support for future endeavors to establish a direct point of sale retail market for small farmers and the community.

The Need for Bees

Pittsylvania County Beekeepers Association

The requested grant funding will be used to promote, support, advertise, and establish new beekeepers and bee colonies in Pittsylvania County. The PCBA plans to use the funds to establish a brand identity and to encourage current beekeepers to expand their private apiaries. For new beekeepers, a portion of the funds will be used to provide all the necessary materials to fully outfit them for beekeeping including a hive, protective clothing, instructional manuals, and various hive management instruments. These funds will also be used to design a new beekeepers course for those interested in beekeeping, but do not know where to start. A portion of the grant funds will be used to attract specialist to the county to offer their wisdom about honey bees, their care, honey collection, etc. We would also like to cover any costs associated with those experienced beekeepers who offer hands-on demonstrations for new beekeepers and to try and show how to capture a swarm. Later in the year, we would like to have the same beekeepers demonstrate the process of actually harvesting honey.