

What Do We Mean by Value-added Agriculture?

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Value-added agriculture is an important strategy to both agricultural entrepreneurship and rural development (Coltrain, Barton and Boland, 2000; Kilkenny and Schluter, 2001; Womach, 2005). Several federal and state programs support entrepreneurs' and communities' value-added agriculture efforts (Amanor-Boadu, 2007; Kilkenny and Schluter, 2001). However, current definitions of value-added agriculture lack a framework establishing economic linkages between consumers' preferences and farm practices. Thus, policies and grant programs targeting value-added agriculture may be ineffective in assessing consumers' propensity to spend, farmers' goals and assets, and community development strategies. Similarly, farmers may be chasing fads mismatched to their resources and advantages.

Traditionally, value-added agriculture was associated with the processing of raw products (Coltrain, Barton, and Boland, 2000; Amanor-Boadu, 2003). Over the years, value-added options for farmers have expanded to include enhancing value through the agricultural products' identity characteristics—traits that may not be physically seen, including local and organic designations (Womach, 2005; Ernst and Woods, 2011; USDA, 2015). In fact, local foods are currently a popular component of value-added agriculture (Liang, 2015; Woods et al., 2013; Hardesty, 2010; Onken and Bernard, 2010).

Many studies, outreach publications, and grants since the 2000s have focused on measures to promote and support value-added agriculture (Born and Bachman, 2006; Lambert, et al., 2006; Evans, 2009; Anderson and Hanselka, 2009; Brees, Parcell, and Giddens, 2010). Often these programs and publications do not define value-added but rather assume a common understanding that builds upon previous definitions. Yet definitions from various sources can be overly-general (or restrictive), ambiguous, or even conflicting. Clearly, interpretations of value-added differ among stakeholders (Ng, Westgren, and Sonka, 2009). Farmers, funders, policymakers, and researchers lack a cohesive framework for analyzing the viability of value-added agriculture initiatives and their potential to meet the goals outlined by the U.S. Department of Agriculture (USDA) (2015) is described below.

The proposed framework emphasizes the linkages between farmers' competitive advantages, value-added practices, and evolving consumer preferences in agricultural and food products.

USDA Definition

The USDA is a prominent funder of value-added agriculture, and many case studies and publications (Ernst and Woods, 2011; NSAC, 2013; AMRC, 2015) directly reference the USDA (2015) definition of a value-added agricultural product:

(1) The agricultural commodity must meet one of the following five value-added methodologies:

- Has undergone a change in physical state
- Was produced in a manner that enhances the value of the agricultural commodity
- Is physically segregated in a manner that results in the enhancement of the value of the agricultural commodity
- Is a source of farm- or ranch-based renewable energy, including E-85 fuel
- Is aggregated and marketed as a locally-produced agricultural food product

(2) As a result of the change in physical state or the manner in which the agricultural commodity was produced, marketed, or segregated:

- The customer base for the agricultural commodity is expanded. A greater portion of the revenue derived from the marketing, processing, or physical segregation of the agricultural commodity is available to the producer of the commodity

This USDA definition helps to characterize value-added strategies and determine grant eligibility. It does not help farmers to identify how they respond to consumer preferences to expand the customer base or how they evaluate their economic feasibility. Ironically, responsiveness to shifting consumer preferences and economic competitiveness are the critical components of the business stability that granting agencies and local, state, and federal policies, as well as the farmers themselves, aim to achieve.

Other definitions have addressed consumer preferences and the economics of production. Both Coltrain, Barton, and Boland (2000) and Amanor-Boadu (2003) stress the importance of maximizing the farm's internal efficiencies and assessing technical and economic feasibility before starting a value-added initiative, noting that value-added strategies cannot replace efficient production. Coltrain, Barton, and Boland (2000) define adding value as "the process to economically add value to a product by changing its current place, time and form characteristics to characteristics more preferred in the marketplace." The ultimate source of value is the consumer who pays for agricultural or food products in the marketplace. Value-added agriculture can only be achieved when farmers are able to supply the market with products carrying form, space, time, quality, functionality, and identity characteristics for which consumers are willing to pay a premium over raw generic commodities without these characteristics.

The economics of value-added agriculture is muddled by different definitions of "value added" used in finance, economics, and public policy, as well as by firms and the public (Lambert, Lim, and Tweeten, 2006; Amanor-Boadu, 2007). Value-added agriculture, as outlined in the USDA definition, is concerned with producers capturing a greater share of revenue. Economists and policy makers often describe value added as a firm's contribution to gross regional product (GRP). A GRP-based value-added definition counts enhanced efficiency of commodity production as a value-added practice, which is not one of USDA's five value-added methodologies.

Furthermore, value added at the firm level may not translate to appreciably higher GRP. Value-added agriculture may increase GRP within smaller rural communities where the local value chain would otherwise end with the sale of a raw commodity to a processor outside the region. However, it may primarily redistribute value from processors to producers on aggregate at the metropolitan or state level. Thus, the farmer, the small town mayor, and the governor's economic development staffer may well view the same project very differently.

The Agricultural Marketing Resource Center (2015) maintains a definition of value-added agriculture that includes only the first three methods listed by USDA, excluding energy and local foods. Ernst and Woods (2011) rely on the Agricultural Marketing Resource Center definition. Energy and local foods may be regarded as specific interests that fit within the other three methodologies. Local foods are a type of physical segregation that responds to consumer preferences. Farm- or ranch-based energy may enhance the value of agricultural commodities, as in the case of producing ethanol or powering farm equipment with solar panels in response to consumers' interest in green living.

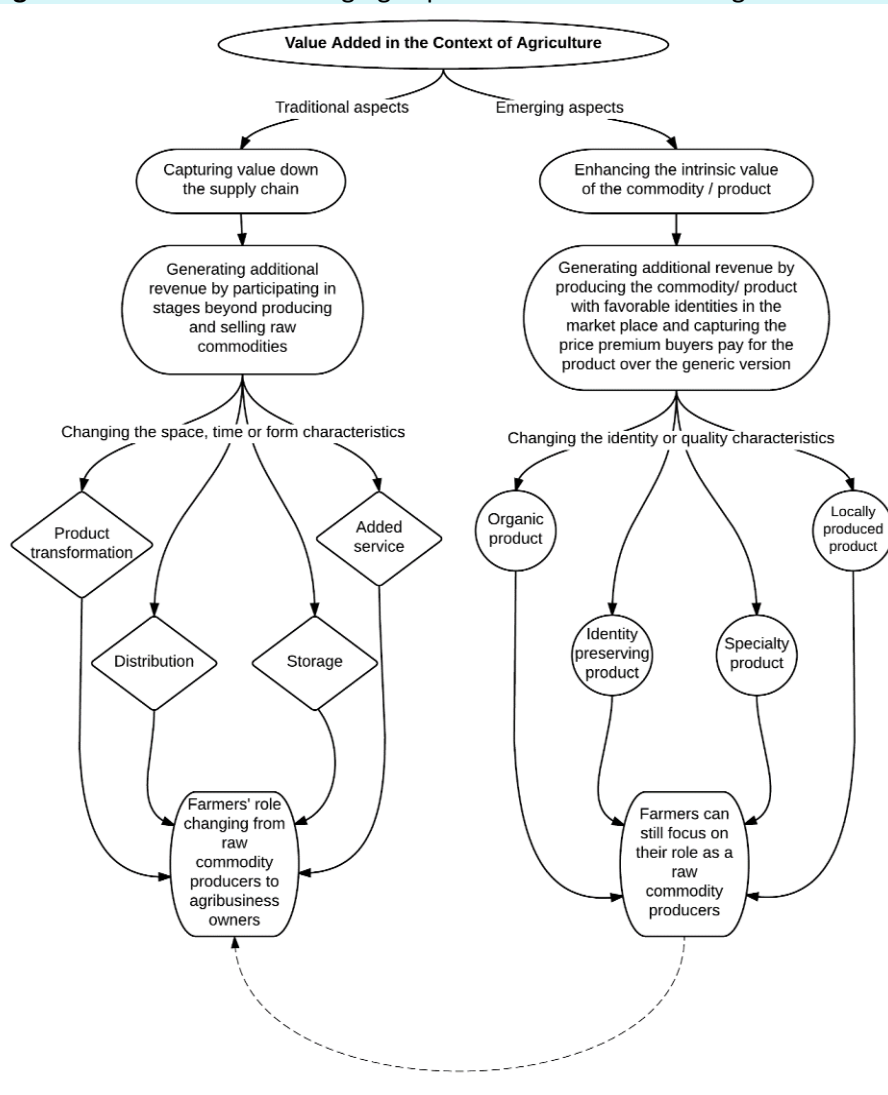
Traditional vs. Emerging Aspects

The flowchart on Figure 1 illustrates the differences between the two types of value added in agriculture. Traditionally, value added is captured or created by following the path on the left, in which farmers participate in stages beyond production in the agricultural supply chain, such as product transformation, distribution, storage and added services, and transform their roles from raw commodity producers to agribusiness owners with extended capabilities.

More recent developments in the agricultural marketplace and production practices enable farmers to enhance the value of their products by segregating products and commanding a higher price based on identity characteristics, including local and organic designations (Womach, 2005; Ernst and Woods, 2011). The two types of value added are not mutually exclusive, and farmers can combine practices from both paths.

Regardless of the path(s) taken, engaging in value-added activities is expected to improve profitability or reduce risk for the individual farm. Risk is generally lower when value is created by offering a trait valued by consumers

Figure 1: Traditional vs. Emerging Aspects of Value Added in Agriculture



Source: Authors. and Ernst and Wood. 2011

than when value is captured by changing the distribution of value in the production chain (Brees, Parcell, and Giddens, 2010). Still, producers must continually cultivate competitive advantages, such as being the low-cost producer, the first to employ a new practice, or the most reliable supplier (Born, 2001; Brees, Parcell, and Giddens, 2010).

A Comprehensive Definition and Conceptual Framework

We rely on the USDA (2015), Agricultural Marketing Resource Center (2015), and Coltrain, Barton, and Boland (2000) definitions to craft an inclusive definition of value-added agriculture that underpins a framework for identifying value-added opportunities and evaluating business plans. The proposed definition responds to the aims articulated in the USDA definition and related funding while maintaining the flexibility of broader definitions, which allows farmers, researchers, extension and outreach educators, and policymakers to respond to evolving consumer preferences and technology:

Value-added agriculture is a portfolio of agricultural practices that enable farmers to align with consumer preferences for agricultural or food products with form, space, time, identity, and quality characteristics that are not present in conventionally-produced raw agricultural commodities. Value-added agriculture can be characterized by farmers changing their position on the supply chain, creating closer or direct linkages between themselves and consumers, or changing production processes to alter or preserve certain intrinsic characteristics of their farm/ranch products.

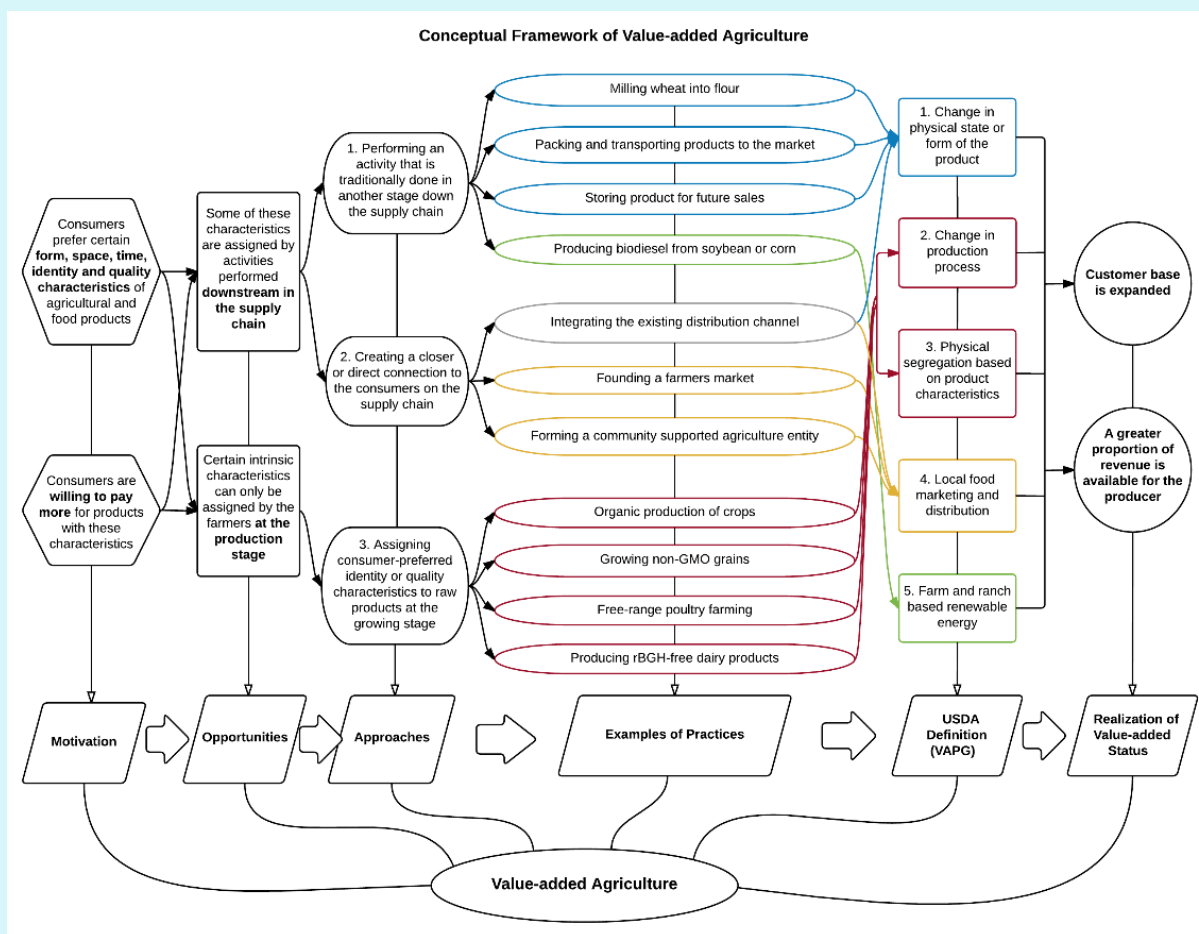
This generalized definition and the accompanying conceptual framework (Figure 2) emphasize the linkages between consumers preferences as sources of value added in agriculture, the practices enabling farmers to capture that value, and farmers' and policymakers' objectives. Relating the motivation of value-added agriculture to consumer preferences helps farmers to think beyond the products they are producing and analyze the opportunities to be financially rewarded for creating value for consumers. Following Coltrain, Barton, and Boland (2000), Amanor-Boadu (2003), and others, the framework views efficient production not as a value-added strategy but as a prerequisite for pursuing value-added opportunities.

To capitalize on value-added opportunities, farmers can adopt one or more of the following three approaches based on their capability and resources, including:

1. performing an activity that is traditionally done in another stage down the agricultural supply chain, which changes the form, space and time characteristics of the raw agricultural commodities
2. vertically integrating several stages in the supply chain, or horizontally coordinating with other farmers, or bypassing stages in the supply chain in order to create closer or direct connection between farmers and consumers
3. performing an activity or adopting a production practice at the growing stage that changes the identity or quality characteristics of the raw products to characteristics consumers value higher in the market place (Figure 2)

Performing an activity traditionally done further down the supply chain is in line with the traditional capture-approach to value-added agriculture (Brees, Parcell, and Giddens, 2010). Instead of selling raw commodities for further processing, the farmers can process their products—such as, milling wheat into flour, making orange juice from fresh oranges, making ready-to-eat salad packs from fresh vegetables. They can also provide services, such as packaging, transportation, or storage, to provide products more easily consumed (preferred form characteristic), closer to the market (preferred space characteristic), or at a time when supplies are lower and prices are higher (preferred time characteristic).

Figure 2: Conceptual Framework of Value-Added Agriculture



Source: Authors, and USDA/RBS, 2015

The second value-added approach integrates or coordinates the supply chain with the purpose to create closer connections between farmers and consumers rather than simply competing for dollars with other participants in the supply chain. This relationship between farmers and consumers can be mutually beneficial, because farmers can earn more than wholesale prices while consumers may pay a premium to purchase what they perceive as higher quality products that meet their form and identity preferences, one of which may be a relationship with the farmer. Thus, the approach relies on creating value by cultivating competitive advantages focused on consumer relationships (Born, 2001; Brees, Parcell, and Giddens, 2010).

Local food marketing and distribution provides an example of this approach. By localizing the distribution channels of farm products, for example through establishing a farmer's market with other local farmers or forming a community supported agriculture (CSA) organization, farmers and consumers can share the value which would otherwise be captured by wholesalers and retailers in the traditional

agricultural supply chain. Through local food marketing and distribution, farmers can be financially rewarded by consumers for providing products with preferred space, time and identity characteristics.

The third approach, changing the identity or quality characteristics of the raw products, can only be done at the growing stage. These practices establish and preserve consumer-preferred characteristics along the supply chain using labels and other segregation techniques. For example, organic product identity is obtained through organic practices at the growing stage, can be certified, and can carry a price premium over non-organic products of the same type regardless of the product's distribution channel. Similarly, practices such as segregating non-genetically modified organism (GMO), free-range poultry, recombinant bovine growth hormone (rBGH)-free dairy products, and premium grade beef can also enable farmers to create additional value by satisfying, managing traceability and giving assurances related to some customers' preferences for products with certain identity and quality characteristics (Brees, Parcell, and Giddens, 2010).

Other factors such as production location are important components of a product's identity and provide value-added opportunities. For example, products grown in a specific location or region might be perceived by the consumers as having superior quality over products from other regions. State labeling campaigns such as "Idaho potato" and "Florida orange" can help farmers capitalize on the value adding opportunities based on the origin and expected quality of their products. Even when a product's origin is not associated with any special quality, labeling its origin can indicate its locally produced food status, another value-added identity characteristic.

Most value-added agricultural practices fit clearly into one of the three approaches described above. But some value-added agricultural practices, such as agritourism, incorporate multiple approaches simultaneously. A "u-pick-it" organic strawberry farm provides an example: the owner adopts an organic production process and markets the strawberries as organic products; the strawberries are mostly purchased by visitors from surrounding areas, making the agritourism business a form of local food marketing and distribution; and strawberries can be made into cakes and pies sold to the visitors, which involves some processing of the raw strawberries. Features of all the three types of value-added agriculture are evident in this case.

Simply adopting any practice that fits into the framework does not guarantee its value-added status. Ultimately, at least one of the two essential conditions needs to be achieved by any agriculture practice for it to truly add value to the farmers: First, as a result of the practice, the customer base of the implemented farm is expanded; and, secondly, as a result of the practice, a greater proportion of revenue from selling the final product—made of raw farm products—is available for the farmers.

Putting it to Use

Many policies and programs supporting value added agriculture as a farm entrepreneurship and rural development strategy lack a framework recognizing the importance of consumers' willingness to pay and farmers' competitive advantages. Effective economic development programs must be consistent with the goals of producers and consumers. The proposed definition and framework introduce pathways linking the consumer preferences with farm assets and goals. Funding agencies and policy makers can improve program effectiveness by using the framework both as a guide for applicants and to form metrics to assess applicant strengths. The framework also contributes to curricula for cooperative extension educators and others who help farmers create and evaluate business plans. The pathways presented can guide prospective value-added farmers in conceiving business plans suited to the farm's resources and competitive advantages.

For More Information

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