



Understanding perceptions of potato seed quality among small-scale farmers in Peruvian highlands



C. Urrea-Hernandez^{a,b,*}, C.J.M. Almekinders^b, Y.K. van Dam^a

^a Marketing and Consumer Behaviour, Wageningen University. PO Box 8130 670 KN WAGENINGEN, The Netherlands

^b Knowledge Technology and Innovation, Wageningen University. PO Box 8130 670 KN WAGENINGEN, The Netherlands

ARTICLE INFO

Article history:

Received 6 August 2014

Received in revised form 22 July 2015

Accepted 17 November 2015

Available online 19 December 2015

Keywords:

Farmers

Seed quality perceptions

Laddering

ABSTRACT

The increased opportunities of smallholder farmers for commercial production of native potato varieties have resulted in an interest to support production and use of quality seed tubers of these varieties by the formal sector. In this context, a study was carried out to explore farmer perception of seed quality and the differences with formal expert perceptions of seed quality. It introduces Means-End-Chains methodology as a novel approach in studying farmers' decision on the use of varieties and seed. Results show that security, health and wellness are important personal values that influence the quality perception of small-scale farmers in Andean highlands. To pursue these values, they look for seed tubers that reflect the variety characteristics in combination with seed quality cues that reflect altitude, soil and low input management. Farmers do not associate these last ones with seed tubers from the formal seed sector.

© 2015 Royal Netherlands Society for Agricultural Sciences. Published by Elsevier B.V. All rights reserved.

1. Introduction

Like in many food crops and developing countries, most potato seed production, selection, and exchange in the Andes is done by farmers and traders. Farmers often select the smaller potatoes from their own harvest to be used as seed in the next season. Reasons to acquire seed tubers from elsewhere include seed degeneration, misharvest, loss in storage and introduction of new varieties ([1], [2], [17]). Seeds from external sources are mostly exchanged within regional boundaries under various modalities like family, farmer to farmer, markets, or biodiversity and seed fairs. The formal potato seed system which is composed of private and governmental organizations has a minor participation in the potato seed supply to smallholder farmers in the Andes; its role is mainly restricted to the introduction of seed of improved varieties and seed quality control [2,17].

The limited role of the formal seed system is explained in various ways. Some studies point to constraints at the supply side, like high seed production costs or logistic problems. Others emphasize the constraints at the demand side, like information asymmetries or anti-cyclical demand (e.g. [1,3,4]; [17]). In addition, it is assumed that farmers do not purchase seed from formal seed sources because they lack the investment- and risk taking capacity.

Also, in situations where farmers prefer local varieties because they are better adapted to their agro-ecological and socio-economic conditions, the formal seed sector is not an important source of seed as it usually only provides seed of improved varieties. The above combination of factors affects farmers demand for seed from formal seed programs, leaving many seed quality schemes economically unviable.

An issue that may contribute to the limited role of the formal seed sector is that actors in the formal seed system perceive the qualities of varieties and seed differently as compared to actors in the informal seed system. Mismatches in perception between formal experts and users are common in a range of fields such as manufacturing industry, food, and water management i.e. [30,31]; [5,6]; [7]. Experts usually ascribe these mismatches to a lack of knowledge by users, who should be “better educated” to be able to understand and accept the experts' opinions, improvements or solutions [6]. This attitude ignores the informal expertise of users [8] and overlooks the possibility that mismatches often have other causes such as a different viewpoint ([5,6]; [7]). In seed systems the prospective users are farmers, who usually are experts on their own field. In the case of seed, rather than user-ignorance, a mismatch can be based on different knowledge and different goals between formal experts (researchers) and informal experts (farmers), leading to different conceptions of product quality [32], i.e. seed quality.

The criteria used to develop improved varieties and to define seed quality are universally based on formal expert knowledge, and

* Corresponding author. Tel.: +31644450524.

E-mail address: carolinaurrea@gmail.com (C. Urrea-Hernandez).

skewed to western value systems [4]. This is a typical example of a belief in universally shared economic values resulting in a focus on increased productivity and efficiency [6], which may be considered benefits but not a value *per se*. This paradigmatic belief influences the generation of scientific knowledge and, consequently, the definition of quality standards and policies. It explains how high yields and low degeneration rates have become the criteria of a credible seed system [9]. It is well established that these criteria of formal seed system experts, i.e. agricultural researchers, have resulted in improved varieties with high yield potential. Farmers on the contrary are often more focused on yield stability, resilience, resistance and low input. As a consequence, the formal and farmer seed system often do not coincide in their optimization. While this mismatch has been well studied for varieties, less is known about the possible mismatch between criteria of formal seed system experts and farmers for quality of seed *per se*. Since normally, seed of local varieties is not available from the formal sector, the option for use of formal vs. other seed only exists for seed from improved varieties, in which case we, formal experts, assume that accessibility (distance, information, costs) and availability are decisive for farmers' choices.

In this paper the possible differences between formal experts' and farmers' perception in the definition of seed quality are explored. The study was carried out in the context of an initiative that supports the commercial production of native potato varieties in the Andean Region and aims to introduce a system of Quality Declared Seed [10] as a seed tuber quality assurance scheme. So far, however, farmers had shown little interest to invest in improved quality potato seed of native potato varieties.

The study has two parts. The first part looks into the formal expert perception of seed quality, i.e. agricultural researchers. The second part explores the quality perceptions of informal experts, i.e. potato farmers. The study uses quality concepts and methodologies that are common in market and consumer theories. These concepts are first explained. Thereafter each of the two parts of the study is presented with its methodology. In the final discussion the results of the two studies are integrated

2. Perceptions of seed quality

Quality of a product means "fitness for use" relative to available alternatives, but this leaves sufficient room for conflict [11,33,34]. In abstract terms, quality is the "intrinsic" excellence of a product, which cannot be precisely defined—though people may learn to recognise it through experience [33]. This abstract quality is the implicit basis for four groups of concrete definitions of quality that are used in practice. These definitions provide ground to comprehend the origin of the discrepancies between experts and users, in this study being formal experts (researchers) and informal experts (farmers). These four groups are:

- a. Product-based definitions view quality as a precise and measurable variable that is an intrinsic property of the product
- b. Manufacturing-based definitions view quality as conformance to requirements and specifications, which is guaranteed by engineering and quality control
- c. User-based definitions view quality as the basis of user satisfaction, which is achieved when the product outperforms any alternative on those benefits or positive consequences that the user seeks
- d. Finally, value-based definitions view quality in terms of trade-off between the required benefits [33]

In all four groups of definitions, quality is assumed to depend on abstract benefits, which are indicated by concrete product

characteristics. The observable product characteristics are the quality cues that are used to infer the (not a priori observable) quality attributes. The quality attributes provide the benefits, but choices are made on the basis of the quality cues [11,12]. In the product and manufacturing based view those quality cues are formalised parameters of the product or the production process. In the user based and value based view, those cues are non-formalised product features that are observed and interpreted by the user.

Since actual quality of seed is only experienced through use, both formal experts (i.e. researchers) and informal experts (i.e. farmers) have to infer this quality from the a priori available quality cues. Looking from different angles, formal experts and informal experts may use different cues, or they may use cues differentially, to infer the quality attributes that they consider important [11]. Formal experts and informal experts may also disagree on the quality attributes that are important, because they may disagree on the underlying conception of what quality means for a specific product category in a specific use context.

2.1. Formal expert perceptions of quality in a seed context

Formal expert perceptions of quality typically follow the product based or the manufacturing based approaches of product quality. Seed quality is reduced to parameters, standards and processes that, although concrete and measurable, are defined by what formal experts can measure and consider important [12,13]. Apart from possible imperfections in defining standards and parameters, the formal expert view of quality is especially vulnerable when disconnected from informal expert perception of quality [35,36].

The parameters for seed quality used by formal experts relate to variables that predict yield potential. Formal expert quality perception in seed potatoes usually refers to phytosanitary quality of the tuber, yield potential of the batch, disease resistance, physiological growth, crop growth and developmental characteristics [10,14]. Formal seed experts are commonly seen as the guardians of this parameterised seed quality, and their measurable quality cues provide the parameters on which seed is optimised. Implicit in their definition of quality are the perceived benefits for farmers that formal experts believe results from adoption of the seed that matches expert quality standards.

For formal experts the relation between the quality cues and the quality attributes that deliver the desired benefits is formalised in parameters, and ultimately expressed in (certification) protocols and standards. Formal expert interviews therefore are a feasible research method to identify the key quality cues and quality attributes that are used [15].

2.2. Informal expert perceptions of quality in a seed context

Like the formal expert, also the informal expert uses quality cues to infer the quality attributes that deliver the desired benefits in product use [11]. Informal expert perceptions of quality are cast in terms of how the product can provide consequences that are positively valued. Consequences are valued positively if they contribute to the goals that the informal expert has set. In this way product quality is related to what the product does for, and means to, the informal expert. Informal expert differences in valued goals imply differences in consequences that are sought in products. These dissimilarities imply different valuation of quality attributes and different use of quality cues [13,16,37].

To infer if a seed will deliver the desired qualities, farmers, i.e. the informal experts, use quality cues such as seed state (turgid/sucked), size, sprout diameter, absence of damages by insects, rottenness or visible diseases [2,17]. Unlike the formal expert, this inferential process of the informal expert is not

Download English Version:

<https://daneshyari.com/en/article/4501232>

Download Persian Version:

<https://daneshyari.com/article/4501232>

[Daneshyari.com](https://daneshyari.com)