

Modelling buyer-seller relationships in agribusiness in South East Asia.

Peter J. Batt
Curtin University of Technology
GPO Box U1987
Perth 6845
WESTERN AUSTRALIA
Tel. 61 8 9266 7596
E-mail: battp@muresk.curtin.edu.au

Abstract.

A model of buyer-seller relationships is developed to explain the nature of the long-term relationships between Filipino potato farmers and their seed suppliers. Relational satisfaction is derived from the seed supplier's offer quality (seed quality, delivery intent and competitive price), relationship specific investments (adaptations, communication, education and training and reciprocal buying) and a reduction in uncertainty in the seed supply market. However, rather than satisfaction leading to trust, satisfaction has a more direct impact on a potato farmer's desire to maintain a long-term relationship. Nevertheless, in the absence of a formal seed certification system and the nature of the long-term credit arrangements that often exist between farmers and seed suppliers, including reciprocal purchasing arrangements, trust remains a key relationship building variable. Fortunately, seed suppliers have an opportunity to build trust with potato farmers through making relationship specific investments.

Introduction.

Farm purchasing behaviour can be considered as industrial buying behaviour because farmers purchase inputs to produce farm products. However, from an organisational context, farmer's buying behaviour may be quite different from buyer behaviour in industrial organisations. The majority of farms, especially in South East Asia, are small family enterprises without functional departmentalisation and formalised procurement procedures. Farm management, including purchasing, is primarily the responsibility of the farmer.

Another important aspect of purchasing behaviour on family farms is the interdependence between expenditures on household consumption and production inputs (Kool 1994). Given a particular income level, increasing expenditure on farm production inputs can only be made by reducing household consumption and vice versa. Furthermore, given a particular type of farming and a particular production method, changes in the utilisation of farm inputs may occur quite frequently, due to the substitution of inputs arising from changes in input prices, output prices and the prices of consumption goods.

Nevertheless, a farmer's decision to purchase can be considered a problem solving process in which functional, emotional, social and situational variables become important (Kool 1994). Rational motives include such economic factors as cost, quality and service, but emotional and social criteria may become decisive when various alternatives meet minimal functional requirements, or when farmer's are unable to perceive any tangible difference in the functional criteria between alternative offers. Furthermore, farmer's are generally faced with a

large number of alternatives and a limited amount of time in which to make the decision to purchase. Farmers, therefore, often tend to simplify the purchasing task by purchasing inputs successively from the same supplier. Repeat buying may result from a number of reasons including habit, a lack of decision making, a perceived absence of choice, or, the lack of time to evaluate alternative suppliers. These criteria may be related to either the product or to the supplier.

Finally, in a great many instances, the net value of the purchase can be evaluated only after purchase (Kool 1994). At harvest, the actual yields, revenues and profits are realised and this information, as well as the experience accumulated during the growing season and information gained from other farmers, tends to update the parameters farmer's use in making their next decision to purchase (Feder et al 1985).

As an industry, agriculture is embedded in an environment which exerts considerable influence on farm purchasing behaviour (Kool 1994). The influence of the environment is often subtle and persuasive, as well as being both difficult to identify and measure. Webster and Wind (1972) identify six environmental influences including; social, cultural, economic, political/legal, technological and physical. In agriculture, the uncertainty of supply in the farm input market, the uncertainty of price in the farm output market and large seasonal variations in productivity will introduce additional dimensions to the models of organisational buying behaviour proposed by Hakansson (1982), Anderson and Narus (1990), Morgan and Hunt (1994) and Wilson (1995).

Uncertainty is the key dimension affecting organisations, inter-organisational relationships and the costs of transacting (Achrol et al 1983; Heide 1994). Uncertainty prompts firms to establish and to manage relationships in order to achieve stability, predictability and dependability in their relationships with others (Oliver 1990). Performance is thought to improve when more relational market structures are introduced in response to high levels of uncertainty (Noordewier et al 1990). When suppliers are more inclined to respond favourably to buyers requests for change, buyers are able to adjust more readily to changes in the environment. Similarly, when buyers provide information to suppliers, the supplier, in turn, is better able to respond to the buyers requests. However, for there to be a relationship, there must be an expectation of repeat business. When both parties know they are in an extended arrangement, they are more willing to accept short-term disadvantages because things will even out in the long run. However, there is always the risk that either party may seek to take advantage of the situation by acting opportunistically. If there is to be a meaningful long-term relationship, respective buyers and suppliers must learn to trust the opposite party to fulfill their obligations (Hakansson and Wootz 1979; Hallen et al 1991; Han et al 1993; Morgan and Hunt 1994; Achrol 1997).

Developing a conceptual framework of buyer-seller relationships.

After wheat, maize and rice, the potato ranks as the fourth most important food crop in the world. However, unlike the other major food crops which are reproduced from seed, potatoes are highly heterozygous and varietal integrity can only be maintained by utilising vegetative propagation (Horton 1987). Consequently, and almost without exception, the majority of the world's potato farmers use tubers to establish their crops (Beukema and van der Zaag 1990).

Because potatoes are vegetatively propagated, with each successive crop, the productivity of the seed generally decreases, due to the accumulation of disease. During the growing season,

plants may become infected with either a systemic disease or a virus. Generally, those plants which become infected produce infected tubers, which, when replanted, produce infected plants which provide a potential source of infection for other plants. Seed tuber quality, therefore, not only directly influences the crop, but it may also have an impact on the productivity of any future crops derived from that seed (Beukema and van der Zaag 1990). Four variables influence seed tuber quality; seed size, seed purity, seed sanitation and the physiological age of the seed (van der Zaag 1990; Rasco 1994).

However, a farmer's decision to purchase seed may also be expressed in rational economic terms as either value-for-money (Kool et al 1997), or as value-in-use (Hutt and Speh 1995). Seed which is substantially free of pathogens costs more to produce and therefore it will cost more to purchase (Beukema 1990). Improved seed, however, is generally more productive (Monares 1981).

It is widely recognised that, in most of South East Asia, seed is the major cost of potato production (van der Zaag 1990; Rasco 1994). However, farmer's cash flow constraints, their lack of capital and inadequate storage facilities further limit a farmer's ability to purchase improved seed (Crissman and Hibon 1996). Consequently, most potato farmers are forced to borrow to finance the crop and with very little collateral, most are forced to borrow at high rates of interest from various informal sources (cooperatives, traders, input suppliers, relatives and neighbours)(Tagarino et al 1998). Input suppliers extend credit with the express intention of securing the farmer's crop at harvest and therefore availing themselves of the benefits of marketing the crop. Credit is extended on the basis of long standing, personal relationships in which trust between the parties overcomes the need for formal contracts.

All buyers emphasise the importance of reliability of delivery (Lehmann and O'Shaughnessy 1974; Hakansson et al 1977; Ellram 1990). Most buyers prefer to purchase from local sources (Hakansson and Wootz 1975). Local suppliers are generally less expensive and offer more dependable service than those located at a distance. Delivery may be more prompt because the distance is shorter and there is less likelihood of transport delays. More importantly, local suppliers gain greater knowledge of their customers needs and may be more flexible in meeting their requirements (Leenders and Fearon 1993).

When exchange between the buyer and seller takes place in such a manner that the supplier's offer quality exceeds the buyer's expectations, satisfaction increases (Anderson and Narus 1990). Therefore, it is expected that the higher the seed supplier's offer quality, the greater the relationship satisfaction (Figure 1).

High levels of satisfaction will have positive consequences for the relationship, encouraging greater loyalty and a longer-term working relationship (Anderson and Narus 1990). Satisfaction results in increased moral, greater cooperation between the channel members, fewer terminations and reduced litigation (Ganeson 1994). A firm's satisfaction with past outcomes indicates equity in the exchange. Equitable outcomes provide confidence that neither party has been taken advantage of in the relationship and that both parties are concerned about the others welfare. Firms that are able to lower the level of conflict in their relationship experience greater satisfaction (Anderson and Narus 1990).

Where individuals interact with one another for more than short periods, they often adapt to each others needs (Hallen et al 1991). Adaptations are important because most relationships are based on some kind of match between the operations of two firms. Adaptations include

such things as a supplier's modification of a product to suit a customer; delivering to meet buyers production schedules rather than the suppliers; or, the joint establishment of a stock-holding facility (Ford 1984). The supplier may also modify production processes, use alternative logistical systems such as just-in-time and adopt various systems, including quality management, to meet the demands of a customer (Hallen et al 1991). Balaoing and Lazo (1967) indicate that many of the problems traditionally associated with the importation of seed tubers are due to the failure of seed suppliers to adapt to the needs of the potato farmers.

INSERT FIGURE ONE

Therefore, it is predicted that the more the seed supplier adapts to the needs of potato farmers, the greater the relationship satisfaction.

Product education and training includes the broad set of activities that a supplier performs to help the buyer get an innovation up and running (Athaide et al 1996). Because many new technological process innovations are complex and may alter existing production processes, buyers often need to be educated about the potential applications of the new technology before they can evaluate its appropriateness or use the innovation to its full potential. Product demonstration and trial aims to reduce the buyers perceived risk of adoption and to articulate the relative advantage of the innovation. In the emerging industrial countries, the adoption of new technology is often constrained by many factors including the farmer's lack of credit, limited access to information, inadequate farm size, insufficient human capital and the chaotic supply of complementary inputs (Feder et al 1985). Therefore, it is predicted that the provision of education and training programs by the seed supplier will increase the potato farmer's relationship satisfaction.

Lehmann and O'Shaughnessy (1974) and Hakansson, Johanson and Wootz (1977) show that for products that are routinely purchased, there are seldom any problems ascertaining whether the product will do what is required of it. However, where there is some doubt that the product may not perform satisfactorily, potential buyers may embark on an extensive investigation of the alternatives. In situations characterised by high uncertainty, potential buyers will form a complex communications network involving many different organisations which have regular contact with the firm. In the case of high value, highly complex products, communication takes place regarding a wide range of topics, at a variety of levels in the firm, over a long period of time (Cunningham and Turnbull 1982). Communication enables information to be exchanged which may reduce certain types of risk perceived by either firm involved in the transaction. Any uncertainty about a customer's or supplier's organisational structure, viability, methods of operation, technical expertise or competence, can be resolved by personal contact between the parties. Communication is also the process by which participative decision making is fostered, programs are coordinated, power is exercised and commitment and loyalty are encouraged (Gaski 1984). Consequently, it is predicted that the provision of appropriate information and communication by the seed supplier will increase the farmer's relationship satisfaction.

Uncertainty is defined as unanticipated changes in the circumstances surrounding an exchange (Noordewier et al 1990). Unanticipated change arises in a number of ways; (i) need uncertainty arises from difficulties experienced in specifying the exact nature of the inputs (Hakansson et al 1977; Anderson et al 1987; McQuiston 1989; Heide and John 1990); (ii) input market uncertainty exists when the resource required is scarce and if the input market is concentrated (Hakansson and Wootz 1975; Achrol et al 1983; Anderson and Weitz 1986); (iii) market uncertainty reflects buyers incomplete knowledge of the market and potential source alternatives (Hakansson and Wootz 1979; Anderson and Weitz 1986; Oliver 1990); (iv) transaction uncertainty considers the problems associated in getting the product from the supplier to the buyer including performance ambiguity (Hakansson and Wootz 1975; Hakansson et al 1977; Ford 1982; Achrol et al 1983; Jackson 1985; Heide and John 1990; Oliver 1990; Heide 1994); (v) uncertainty in the output sector is attributed to the poor marketing capabilities of channel actors down the line (Anderson and Weitz 1986); and (vi) environmental uncertainty considers changes in the physical, technological and economic environment (Webster and Wind 1972; Heide and John 1990).

The uncertainty of supply in the input market (Balaoing and Lazo 1967; Beukema 1990; Beukema and van der Zaag 1990; Crissman 1989; Crissman and Hibon 1996); the uncertainty of price in the output market (Crissman 1989; Crissman and Hibon 1996); and, large seasonal variations in productivity (Beukema and van der Zaag 1990; Crissman 1989; Crissman and Hibon 1996) will encourage farmers to build long-term relationships with seed suppliers to improve the efficiency of purchasing, to lower costs and increase returns. Therefore, it is expected that potato farmers will be more satisfied with those seed suppliers who are most able to reduce uncertainty.

Trust is the critical determinant of a good relationship (Dwyer et al 1987; Han et al 1993; Ganeson 1994; Morgan and Hunt 1994). However, trust between firms does not occur automatically (Hakansson and Wootz 1979). Decision makers on both sides must first convince themselves of the partners ability, reliability and their integrity. Experience with the channel partner breeds trust (Dwyer et al 1987), and, over time, the accumulation of trust leads to better communication between the respective firms (Anderson and Narus 1990) and the development of cooperative behaviours that are conducive to the long-term success of the relationship (Morgan and Hunt 1994). A buyers trust in their supplier; (i) reduces the perception of risk associated with opportunistic behaviour; (ii) it increases the buyers confidence that short-term inequities will be resolved over the long period; and (iii) it reduces the transaction costs in an exchange relationship (Ganeson 1994). Therefore it is predicted that there will be a positive relationship between the farmer's relationship satisfaction and the farmer's trust in their seed supplier.

When trust exists, buyers and suppliers believe that long-term idiosyncratic investments can be made with limited risk because both parties will refrain from using their power to renege on contracts, or to use a change in circumstances to extract profits in their own favour (Ganeson 1994; Morgan and Hunt 1994). Trust results from expertise, reliability or intentionality of the partner (Moorman et al 1993). Trust is developed from the constant and detailed exchange of information which reduces the uncertainty of performance and the continued exhibition of commitment which nurtures and maintains the exchange relationship (Han et al 1993). Once trust is established, firms learn that coordinated joint efforts lead to outcomes that exceed those that the firm could achieve if it acted solely in its own best interests. Therefore, it is predicted that there will be a positive relationship between trust and the willingness of the seed supplier to make adaptations, to provide education and training programs and to provide and maintain appropriate communication.

Wherever possible, potato farmers will aggressively seek to secure the best source of good seed. With limited land available for planting, potato farmers will have a strong incentive to maximise productivity per unit area (Crissman 1989). No aspect of growing potatoes is more important than the selection of the best possible planting material, for the yield obtained from different stocks of the same variety under the same conditions of culture, depends more on the quality of the planting stock than on any other single factor (Balaoing and Lazo 1967). Moreover, the use of high quality seed improves the productivity of traditional inputs such as irrigation and cultivation practices (Monares 1981).

Product importance is the perceived significance of the buying decision in terms of the size of the purchase and/or the potential impact of the purchase on the firm (Kool et al 1997). Conceptually, product importance refers to the perceived consequences of making the wrong decision. Not unexpectedly, product importance will determine the amount of time the buyer allocates to the purchase decision; the more important the purchase, the greater the perceived

risk of the purchase decision (McQuiston 1989). In situations of high uncertainty, buyers are more likely to purchase from trusted suppliers (Anderson and Narus 1990). Therefore it is predicted that there will be a positive relationship between the importance of purchasing seed and the development of trust between the farmer and their seed supplier.

In some situations, buyers reduce uncertainty by considering only known preferred suppliers. These suppliers may be reputable market leaders, or, alternatively, the buyer may seriously consider only those suppliers with whom it has dealt previously. Anderson, Chu and Weitz (1987) demonstrate that firms are more likely to purchase from suppliers who have supplied them in the past. Current suppliers are perceived as being less risky, more so in situations where there is greater uncertainty (Cardozo and Cagley 1971; Puto, Patton and King 1985). Prior experience provides suppliers with the opportunity to build credibility and trust (Dwyer et al 1987; Anderson and Narus 1990). With experience, firms find themselves better able to predict the others behaviour (Doney and Cannon 1997). Therefore, a positive relationship between the duration of the farmer's relationship with their seed supplier and the development of trust in that seed supplier is expected.

Firms that trust their partner are more committed to their relationship (Anderson and Narus 1990; Morgan and Hunt 1994; Gundlach et al 1995; Kumar 1996). Trust and commitment encourage firms to work at preserving relationship investments by cooperating with exchange partners, to resist short-term alternatives in favour of expected long term benefits and to view potentially high risk actions as being prudent because of the belief that partners will not act opportunistically (Morgan and Hunt 1994). Moorman, Deshpande and Zaltman (1993) define commitment as an enduring desire to maintain a valued relationship. Morgan and Hunt (1994) propose that a firm will commit to an exchange partner when the relationship is considered so important as to warrant maximum effort to maintain it. Such implies that the relationship is important and that there is a desire to continue the relationship into the future (Wilson 1995). Commitment helps stabilise the relationship, alleviate uncertainty and the cost of continually seeking and consummating new exchange relationships (Anderson and Weitz 1992).

A supplier can demonstrate commitment to a customer by directing its efforts solely towards meeting the needs of that buyer (Ford 1984). Commitment may result from favouring customer's in times of product shortage, providing detailed technical information, following up on how products are used and not seeking to acquire new customers. However, a supplier may also demonstrate commitment to a geographic market by; establishing a sales and service office in that market, providing work and service instructions and technical documentation in the buyers language, employing local sales staff and introducing or developing a new product specifically for that market. Not unexpectedly, it is predicted that there will be a positive relationship between trust and commitment.

When the outcomes obtained from the relationship are important or highly valued, when the outcomes from the relationship are higher or better than the outcomes available from alternative suppliers and when fewer alternative sources of exchange are available to the firm, dependence is said to increase (Heide and John 1988). Dependence is also increased when the outcomes from the relationship are comparatively higher or better than the outcomes available from alternative relationships. Firms dealing with the best supplier are more dependent because the outcomes associated from dealing with that supplier are better than those available from poor performing suppliers.

In this respect, Anderson and Narus (1990) view dependence in the relationship as the outcomes given comparison level for alternatives. In this context, dependence is a measure that represents the overall quality of outcomes available to the focal firm from the best alternative exchange relationship. However, it is the firm's perception of its dependence relative to its partner which is of most interest in channel relationships. Relative dependence determines the extent to which a firm will have influence over or be influenced by its partner (Anderson and Narus 1990). With increasing dependence comes greater vulnerability (Krapfel et al 1991). Dependence in an exchange relationship may make one firm more susceptible to the power and influence of another firm. The more powerful partner may be in a position to create more favourable terms of trade for itself (Heide and John 1988; Frazier et al 1989; Lohtia and Krapfel 1994). Therefore, it is predicted that there will be a negative relationship between the farmer's dependence on the seed supplier and the development of trust in the seed supplier.

However, the need to interact with a specific seed supplier will depend on the number of alternative suppliers available (Hakansson and Wootz 1979; Anderson and Weitz 1986; Oliver 1990). Where there are many alternatives, the need to interact is reduced, but as the number of alternative seed suppliers declines, the need to interact will increase. The farmer's inability to choose between alternative seed suppliers is predicted to have a negative influence on the development of trust.

Relationships occur for the purpose of pursuing mutually beneficial goals and interests (Oliver 1990). The essence of a reciprocal relationship is that both parties anticipate that any disadvantages that may arise from the loss of independence, plus the costs of managing the relationship, are more than compensated for by the benefits that arise (Blois 1996). Mutual goals influence performance satisfaction, which, in turn, influence the level of commitment to the relationship. Mutual goals encourage mutuality of interest and stewardship (Wilson 1995). However, differences in ethical and moral values between individuals may either prevent effective interaction or impose a severe deterrent to its development (Cunningham 1982). Attempts by a customer to obtain unreasonably high price concessions, due to the exercise of buying power, may generate a long lasting atmosphere of hostility in the relationship. The use by some customers of multiple supply sources for an input often has the effect of making the customer-supplier relationship non exclusive, which limits the extent of close and confidential cooperation. Conversely, buyers and suppliers who have a strong personal relationship are more committed to maintain the relationship (Wilson 1995). Relationships develop between individuals because business people have a reputation to uphold, the norm of reciprocity prevails and people involved in transactions insist on introducing satisfying, trust-based elements to their transactions (Anderson and Weitz 1986). It is predicted, therefore, that the possession of mutually compatible social norms will have a positive impact on both trust and commitment.

Examining buyer-seller relationships in the Filipino seed potato market.

During January to July, 1999, 235 potato farmers in the highlands of Northern Luzon (the Philippines) were asked to respond to 101 statements which sought to measure the nature of the trading relationship between farmers and their seed suppliers. As the unit of analysis for this research was the relationship between the potato farmer and their most preferred seed supplier, and since it was the farmer who made the ultimate decision to purchase from a particular supplier, it was anticipated that the farmer's attitudes towards the relationship would be the determinant influence.

Given that the majority of farmers in the Philippines speak English, the survey instrument was written in English and the interviews were conducted in English, although farmers often responded in their native dialect. The interviews were conducted in the farmer's homes by a research officer employed by the Highland Agriculture and Resources Research and Development Consortium, Benguet State University, who was fluent in both languages. Farmers were asked to respond to each statement on a 7 point scale from 1 (I disagree a lot) to 7 (I agree a lot).

In order to refine the scale items, a small pilot test with 52 farmer respondents was conducted. The inclusion of a number of open-ended questions provided an opportunity to assess whether the item measures, as developed from the literature, were adequately capturing the key determinants of the farmer's relationship with their most preferred seed supplier. Results indicated that no major amendments to the survey instrument were required.

Farmers were selected from one of five municipalities in proportion to the total area of potatoes planted in Benguet and Mountain Province (Gayao et al 1997). However, in order to approach farmers, it was first necessary to seek permission from the head man in the village who also provided contact names and addresses of suitable respondents. Contact names and addresses for additional respondents were sought during the interviews with farmers. In the absence of any reliable list of potential respondents, such methods of data collection are not uncommon in the developing countries (Della Vedova and Brieva 1995), and, in the absence of any reliable mail or telephone system, provide the only method of contacting respondents.

The measures.

While the questionnaire also asked farmers to provide information about themselves and their current farming practices, the questionnaire was divided into 12 separate sections containing multiple item measures for each of the variables considered. Morris, Brunyee and Page (1998) identified some 22 key variables that they believed characterised buyer-seller relationships. Some of these variables described the overall relationship, whereas others reflected the dyadic nature of the relationship. Morgan and Hunt (1994) proposed that commitment and trust were the key mediating variables between five important antecedents and five desired outcomes from the relationship. Wilson (1995) put forward a set of 13 relationship variables that had both theoretical and empirical support.

Offer quality was measured by 14 items which sought to assess the ability of the preferred seed supplier to deliver good quality of seed, in the quantities required and at a competitive price. Since the majority of small farmers required crop finance, several of the measures were developed from the literature reported by Tagarino, Cungihan and Paday-os (1998). Other measures were developed from the literature reported by Anderson, Chu and Weitz (1987), Campbell (1985), Cunningham and White (1973), Dempsey (1978), Hakansson and Wootz (1975) and Lehmann and O'Shaughnessy (1974).

Submitting the items to principal component analysis (with varimax rotation and Kaiser normalisation) resulted in three factors being extracted. Those items with factor loadings below 0.5 or with cross-loadings greater than 0.4 were excluded. Further clarification of the items contributing to each factor was achieved by applying the reliability coefficient (Cronbach's alpha). However, where the alpha coefficient was below 0.5, the factor was excluded from further analysis (Nunnally 1978) (Table 1).

Table 1. Relationship building factors in the Filipino seed potato market.

	Mean	SD	No. of items	% variance	Alpha
Offer quality: Competitive pricing	6.73	0.347	5	29.23	0.728
Seed quality	5.78	0.516	3	19.21	0.759
Reliable delivery	5.61	0.527	3	12.02	0.664
Satisfaction: Stability	5.33	0.660	4	32.59	0.822
Adequate reward	2.80	0.928	4	15.16	0.805
Expectations	5.66	0.473	4	10.85	0.700
Referable	5.99	0.338	2	8.25	0.726
Trust	5.87	0.377	5	57.22	0.795
Commitment: Support	4.34	0.892	4	52.78	0.882
Continuity	6.89	0.510	2	29.79	0.984
Communication: Kept informed	3.04	0.761	5	51.15	0.896
Ease of contact	6.10	0.460	1	14.56	
Advice	5.46	1.103	1	14.46	
Adaptations: Customer orientation	4.81	0.648	3	56.16	0.818
Supplier orientation	3.93	0.595	1	26.08	
Education and training	2.13	1.314	2	97.13	0.970
Reciprocal buying	4.20	0.928	1		
Uncertainty: Seed specifications	2.24	0.846	3	51.14	0.789
Input market uncertainty	5.48	0.820	2	27.44	0.887
Importance: Supplier evaluation	6.62	0.622	2	48.63	0.729
Economic consequences	4.91	0.927	2	28.67	0.615
Duration of the relationship	4.83	1.026	3	74.10	0.838
Dependence: Independence	1.34	0.727	6	51.23	0.930
Availability of alternatives	5.59	0.462	3	14.34	0.651
Comparison to alternatives	5.71	0.746	1	11.47	
Social norms: Goal compatibility	4.21	0.819	4	41.11	0.828
Mutuality	6.30	0.603	2	22.16	0.612
Opportunistic behaviour	4.03	0.833	1	15.91	

Competitive pricing was comprised of five items which not only demonstrated a need for the preferred supplier to offer a competitive price and favourable terms of repayment, but also evaluated the seed supplier's financial strength and their capacity to provide other farm inputs (including fertilisers and chemicals). Seed quality captured three items which collectively measured the ability of the seed supplier to provide seed which was consistently good and which substantially improved the productivity of the potato crop. Reliable delivery captured three items which not only measured the ability of the seed supplier to deliver seed when the farmer required it, but also demonstrated a preference for proximal seed suppliers who could meet the farmer's immediate needs.

Satisfaction was evaluated by 17 items. With minor modifications to reflect the nature of the industry and the participants, the measures were adapted from previous research reported by Anderson and Narus (1990), Anderson and Weitz (1992), Ford (1984), Frazier (1983) and Ganeson (1994). Factor analysis produced four factors which collectively explained 67% of the variance. The first factor (stability) captured the ability of the farmer's relationship with the seed supplier to reduce the uncertainty in the exchange transaction, and , as a result of the

relationship, to reduce the costs of production. In the absence of a certified seed scheme, farmer's experience much uncertainty in purchasing improved seed.

The second factor (adequate rewards) evaluated the farmer's feeling of being adequately rewarded by the seed supplier (Frazier 1983) in terms not only of the quality of the seed purchased, but also of the prices received for the ware potato crop. Since it is not possible to evaluate the performance of the seed prior to planting, any improvement in productivity can only be evaluated at harvest, which occurs 90-120 days after planting. This factor was also a measure of the extent to which farmer's actively searched for alternatives (dissatisfaction) and the extent to which (satisfied) farmer's rejected other suppliers offers. The third factor (expectations) captured four variables which collectively perhaps best describe satisfaction in terms of the extent to which the seed supplier met the farmer's expectations, the benefits that the farmer obtained from the relationship, cooperation between the farmer and seed supplier and the extent to which maintaining the relationship reduced risk. Factor Four was comprised of two items which indicated how quickly the seed supplier addressed the farmer's complaints (Ford 1984) and how often farmer's referred their seed supplier to other farmers (Blois 1996).

Trust was assessed by 8 items based on the literature reported by Anderson and Narus (1990), Anderson and Weitz (1992), Doney and Cannon (1997), Ganeson (1994), Kumar (1996), Moorman, Deshpande and Zaltman (1993) and Morgan and Hunt (1994). While it was expected that both credibility and benevolence would be captured (Ganeson 1994), factor analysis initially revealed only one factor which explained over 57% of the variation in farmers responses. Trust was found to be a measure of the extent to which the farmer believed their most preferred seed supplier had the necessary expertise to produce good quality seed, the farmer's confidence in their seed supplier, the seed supplier's reputation, the extent to which the seed supplier kept their promise and the belief the farmer had in the information provided by the seed supplier.

Commitment was measured by 10 items, developed from the literature reported by Anderson and Weitz (1992), Dwyer, Schurr and Oh (1987), Ganeson (1994), Gundlach, Achrol and Mentzer (1995), Morgan and Hunt (1994) and Noordewier, John and Niven (1990). Factor analysis revealed two factors that together explained 82% of the variation. The first of these factors, support, captured the various investments seed suppliers made with the farmers to help them grow potatoes, to share the risk of growing potatoes and to provide financial assistance during difficult times (Ford 1984). The second factor, continuity, was a measure of the farmer's expectation that the relationship would continue.

Communication was measured by 10 items developed from the literature reported by Athaide, Meyers and Wilemon (1996), Anderson and Weitz (1992) and Ford (1984). Factor analysis produced one factor containing 5 individual measures and two single measure constructs. The first factor (kept informed) described the nature of the information exchanged between the farmer and the seed supplier and the frequency and the medium within which the information was exchanged (Mohr and Nevin 1990). The remaining two single item factors captured the importance of it being relatively easy to contact the seed supplier (Athaide, Meyers and Wilemon 1996) and how the farmer often looked towards the seed supplier for advice.

Adaptations were measured by 8 items developed from the literature reported by Athaide, Meyers and Wilemon (1996) and Ford (1984). Factor One (customer orientation) was measured by three items which evaluated the seed suppliers willingness to adapt the product

offer to meet the needs of the farmer and the extent to which the seed supplier sought to improve the product offer quality and service. Conversely, a single item (supplier orientation) measured the inverse relationship, where the supplier spent more time persuading the farmer to accept his product offer (Ford 1984).

Education and training was measured by 4 items developed from the literature presented by Athaide, Meyers and Wilemon (1996). A single factor was extracted containing just two items, but which explained 97% of the variance.

Dealing now with the moderating variables, uncertainty was measured by 7 items developed from the literature presented by Achrol, Reve and Stern (1983), Anderson, Chu and Weitz (1987), Bunn (1993), Ganeson (1994) and Noordewier, John and Niven (1990). Two factors were extracted which collectively explained 78% of the variance. Factor One (seed specifications) suggested that most farmers were able to specify precisely what they expected from the seed they had purchased. Most farmers were able to differentiate between the seed they sourced from their most preferred seed supplier and that which they could obtain elsewhere. The second factor (input market uncertainty) dealt with the instability in both the supply and price of the seed available from suppliers.

The importance of the purchase and therefore the amount of time farmers spent making the decision to buy was assessed by 5 items developed from Anderson, Chu and Weitz (1987). Somewhat unexpectedly, two factors were extracted. The first factor (supplier evaluation) suggested that farmer's spent a considerable amount of time making the decision to purchase and that, despite the long standing relationships that often existed between seed suppliers and farmers, that farmer's carefully evaluated the alternatives every time they purchased new seed. The second factor (economic consequences) dealt with the cost of purchasing the seed and the number of times the farmer chose to renew the seed.

The duration of the relationship was measured by 3 items developed from the literature presented by Anderson, Chu and Weitz (1987) and Anderson and Weitz (1992). The three items were captured by a single construct which explained 74% of the variance.

Dependence was measured using 12 items developed from the literature reported by Anderson and Narus (1990), Frazier, Gill and Kale (1989), Heide and John (1988) and Ganeson (1994). Factor analysis produced three factors which together explained 77% of the variance. Factor One (independence) described how and despite the financial obligations between farmer's and seed suppliers, most farmer's were not unduly influenced by the demands imposed upon them by their seed supplier. Factor Two (availability of alternatives) demonstrated that farmers could choose between alternative seed suppliers and that they were free to do so at any time. However, Factor Three (comparison to alternatives) captured that construct described by Anderson and Narus (1990) as the outcomes given comparison level for alternatives. Such confirmed that, relative to the alternative seed suppliers, the farmer's most preferred seed supplier had that seed offer with the best overall quality. Not unexpectedly, and in the absence of a certified seed scheme, such may provide the major reason for the farmer's reluctance to readily pursue alternative offers, even although they were readily available.

Finally, social norms were measured using 7 items developed from the literature reported by Achrol, Reve and Stern (1983), Frazier (1983), Gundlach, Achrol and Mentzer (1995) and Morgan and Hunt (1994). Factor analysis produced three factors which collectively explained

79% of the variance. Factor One (goal compatibility) captured four items which collectively produced a construct to evaluate the extent to which the goals of the farmer and the seed supplier were similar. Factor Two (mutuality) demonstrated how the relationship between the farmer and the seed supplier was based on mutual benefit and trust, and how, when the farmer faced difficulties, it was important for the relationship to be maintained. The third factor captured in a single item the extent to which the seed supplier behaved opportunistically.

Evaluating the model.

Using the factor scores saved from principal component analysis, the strength and direction of the relationship between the various constructs was evaluated using multiple regression. As predicted, there was a positive relationship between the seed supplier's offer quality and the potato farmer's relationship satisfaction (Table 2).

As seed quality improved, relationship satisfaction improved for each of the four measures of satisfaction. However, for two factors (adequate reward and referral), price competitiveness was observed to decrease as satisfaction increased. Such would suggest that while farmers sought to obtain more competitive seed prices and more competitive loans from suppliers, there was very little difference between alternative credit offers, hence potato farmers felt increasingly less rewarded and less likely to refer other farmers to their preferred seed supplier. Similarly, a negative relationship was observed between the reliability of delivery and relationship satisfaction. This would also suggest that most seed suppliers were unable to meet farmer's immediate needs and to deliver seed when the farmer required it.

While offer quality was able to explain 33% of a Filipino potato farmer's relationship satisfaction with their seed supplier, it was apparent that a number of other relationship building variables were also impacting on relationship satisfaction. Of most significance was the importance of communication. Communication was observed to explain 34% of Filipino potato farmers relationship satisfaction with their seed supplier. While the ease of contact was found, perhaps surprisingly, not to reduce uncertainty, this situation arose because most seed suppliers did not regularly advise farmers of potential supply problems, of prices in the seed market, or of prices in the ware potato market. However, as communication between seed suppliers and farmers increased, relationship satisfaction increased. Communication between seed suppliers and farmers increased farmer's perceptions of being adequately rewarded, perhaps, in part, because an increase in communication also enabled farmers to clarify their expectations of what to expect from the relationship.

Table 2. Modelling buyer-seller relationships in the Filipino seed potato market.

VertaltIndependent	Dependent	Serror	R ²	F	Sign
Offer quality	Satisfaction (stability)	0.505	0.421	55.975	0.000
	(reward)	0.771	0.318	35.926	0.000
	(expectation)	0.370	0.395	50.330	0.000
	(refer)	0.309	0.175	16.383	0.000
Satisfaction	Trust	0.338	0.211	15.343	0.000
Trust	Commitment (support)	0.842	0.112	29.481	0.000
	(continuity)	0.511	0.001	0.181	0.671
Communication	Satisfaction (stability)	0.543	0.332	38.274	0.000
	(reward)	0.620	0.560	97.900	0.000
	(expectation)	0.399	0.297	32.484	0.000
	(referral)	0.311	0.163	15.001	0.000
Adaptations	Satisfaction (stability)	0.509	0.410	80.698	0.000
	(reward)	0.842	0.183	26.054	0.000
	(expectation)	0.418	0.225	33.711	0.000
	(referral)	0.331	0.052	6.425	0.002
Education and training	Satisfaction (stability)	0.518	0.386	145.656	0.000
	(reward)	0.739	0.366	134.071	0.000
	(expectation)	0.423	0.189	53.951	0.000
	(referral)	0.333	0.000	0.106	0.745
Reciprocal buying	Satisfaction (stability)	0.635	0.078	19.609	0.000
	(reward)	0.833	0.198	57.582	0.000
	(expectation)	0.450	0.100	25.873	0.000
	(referral)	0.335	0.020	4.677	0.032
Communication	Trust	0.370	0.051	4.14	0.007
Adaptations	Trust	0.361	0.092	11.78	0.000
Education and training	Trust	0.364	0.040	9.62	0.002
Reciprocal buying	Trust	0.376	0.010	2.36	0.126
Social norms	Trust	0.346	0.142	12.70	0.000
Social norms	Commitment (support)	0.592	0.550	93.60	0.000
	(continuity)	0.390	0.424	56.48	0.000
Uncertainty	Satisfaction (stability)	0.379	0.674	239.397	0.000
	(reward)	0.706	0.427	86.308	0.000
	(expectation)	0.405	0.272	43.362	0.000
	(referral)	0.339	0.002	0.233	0.792
Importance of purchase	Trust	0.372	0.035	4.26	0.015
Duration of relationship	Trust	0.377	0.005	1.08	0.299
Alternatives	Trust	0.366	0.073	6.07	0.001

With the vast majority of potato farmers seeking advice from their seed supplier as to which variety to grow and with only 8% of farmers having any post-secondary education, the extent to which the seed supplier offered education and training programs had a significant positive influence on relationship satisfaction. While currently very few seed suppliers provide any education and training programs, potato farmers indicated that the provision of education and training programs would lead to a significant reduction in the costs of potato production, greater stability in the relationship and an increased perception of not only being adequately

rewarded, but improved cooperation and greater benefits. However, the provision of education and training programs had no impact on the extent to which farmers referred their seed supplier to other farmers.

Not unexpectedly, the extent to which the seed supplier was prepared to adapt their product offer to meet the needs of potato farmers had a significant positive impact on relationship satisfaction. The seed supplier's willingness to adapt the product offer not only reduced the amount of uncertainty in the seed supply market, but also had a positive impact on the productivity of the crop and the farmer's perceptions of being adequately rewarded. Further analysis of the product offer demonstrated that adaptations to the seed quality dimension had the greatest impact on relationship satisfaction. The willingness of the seed supplier to adapt the product offer was also observed to have a positive impact on the extent to which the farmer referred their preferred seed supplier to other farmers. Conversely, for those seed suppliers who chose not to adapt their product offer, there was, as expected, a negative impact on relationship satisfaction. However, even where the seed supplier chose not to adapt their product, there was a small, but positive relationship with stability. This would suggest that, irrespective of whether or not the seed supplier adapted their product offer, having a long-term relationship with their most preferred seed supplier reduced the uncertainty of supply in the seed potato input market.

With the majority of potato farmers (98%) selling their ware potato crop to vegetable traders and wholesalers, many of whom are also seed suppliers and financiers, reciprocal buying was expected to have a significant impact on relationship satisfaction. Indeed, a significant positive relationship was observed for all four dimensions of satisfaction, but especially for that dimension which evaluated the farmer's feelings of being adequately rewarded by their seed supplier.

Collectively, including offer quality and the four relationship building activities (adaptations, communication, education and training and reciprocal buying) and the interactions that were observed between offer quality and the relationship building activities, the model was able to explain 81% of the potato farmer's relationship satisfaction with their seed supplier. However, it was also anticipated that the farmer's relationship satisfaction would increase where (and if) the relationship was able to reduce uncertainty in the seed market. A significant positive relationship was observed between the reduction in uncertainty in the seed market and an increase in the farmer's relationship satisfaction. The relationship, however, was significant for only three of the four dimensions measuring satisfaction; there was no significant relationship between the reduction in uncertainty and the extent to which a farmer referred their seed supplier to other farmers. A subsequent re-evaluation of the model confirmed yet another significant improvement; with the model now explaining 83% of the potato farmer's relationship satisfaction.

A significant positive relationship was observed to arise between the farmer's relationship satisfaction and the trust the farmer placed in their most preferred seed supplier. However, the relationship was significant for only two dimensions of satisfaction and positive for only one. The more often the seed supplier met the farmer's expectations, the greater the cooperation between the seed supplier and the farmer and the greater the benefits that the farmer could obtain by maintaining their relationship with their seed supplier, the greater the amount of trust the farmer placed in their seed supplier. Conversely, when trust between the farmer and the seed supplier deteriorated, aggrieved farmer's spoke about their unfavourable experience with other farmers. Such behaviour is supported by the consumer behaviour theory.

While relationship satisfaction alone was able to explain just 21% of the trust Filipino potato farmer's placed in their seed supplier, the relationship building variables (communication, adaptations, education and training and reciprocal buying) were also predicted to influence trust. A significant positive relationship was found between the willingness of the seed supplier to provide education and training programs and the farmer's trust in that seed supplier. There was also a significant positive relationship between communication and trust, although for only one dimension; the extent to which the seed supplier advised the farmer on technical matters, market prices and potential supply problems. Similarly, while there was a positive relationship between the farmer's trust in their seed supplier and the willingness of the seed supplier to adapt their product offer to meet the needs of potato farmers, there was a negative relationship between the farmer's trust and those seed suppliers who chose not to adapt their product offer. There was no relationship between reciprocal buying and the farmer's trust in their seed supplier, which suggested that other moderating variables such as dependence and the relative availability of alternative seed suppliers may have a significant influence on trust.

With regard to the nature of the credit arrangements between most farmers and seed suppliers and the farmers apparent vulnerability to concur with the seed suppliers demands, a negative relationship between trust and the farmer's dependence in their seed supplier was anticipated.

However, a significant positive relationship was observed, albeit for only one dimension. The vast majority of potato farmers indicated that they were anything other than dependent on their seed supplier; they were able to exercise considerable choice between alternative seed suppliers and, contrary to expectations, seed suppliers did not dominate the relationship. That dimension which was found to be significant was the outcomes given comparison level for alternatives, which confirmed that, relative to the alternatives, the farmer's most preferred seed supplier provided the best seed offer. Achieving such a result prompted an investigation into the nature of a relationship between offer quality and trust, although no such relationship had been anticipated. A significant positive relationship between trust and seed quality ($R^2 = 0.054$, $SE = 0.367$, $F = 13.271$) and trust and price ($R^2 = 0.052$, $SE = 0.368$, $F = 12.689$) was observed. Such can be explained on the basis that seed quality cannot be evaluated until harvest and that the repayment of the loan did not occur until after the crop had been sold. In either instance, trust between the potato farmer and the seed supplier was fundamental to the relationship.

In this regard, it was with some surprise that no relationship between trust and the duration of the farmer's relationship with their most preferred seed supplier could be established. It would seem that, despite the significant benefits attained from their most preferred seed supplier, farmers could not only choose between alternative seed suppliers, but upon each occasion that they purchased seed, they re-evaluated alternative seed offers. Such behaviour can, in part, be explained by the capital nature of the purchase. Purchasing seed tubers is an infrequent event, for the majority of potato farmers (65%) indicated that they retained a proportion of the crop as seed for three or more subsequent crops. Consequently, because of the impact purchasing seed had not only on the crop, but any subsequent crops derived from that seed, farmer's spent a considerable amount of time evaluating alternative seed offers. Not unexpectedly, the less farmer's trusted their seed supplier, the more time farmer's spent evaluating alternative seed suppliers offers.

That factor which best explained the trust between a farmer and their seed supplier was social norms (14%). As predicted, there was a significant positive relationship between social norms and the trust farmer's placed in their seed supplier. Pursuing similar goals, discussing business plans with one another and mutuality of interest had a significant positive impact on trust. However and not unexpectedly, whenever the seed supplier chose to behave opportunistically, there was a significant negative impact on trust between the farmer and their seed supplier.

Social norms also explained over 48% of the commitment farmer's demonstrated towards their most preferred seed suppliers. There was a significant positive relationship between both dimensions of commitment (support and continuity) and mutuality and goal compatibility, and a significant negative relationship with opportunistic behaviour.

While a positive relationship between trust and commitment was expected, a significant positive relationship was found for only one dimension; the amount of support the seed supplier provided the farmer. There was no indication of any relationship between trust and the farmer's long-term commitment to the seed supplier. Given that the standard error for continuity exceeded the standard deviation, there was some error in the model, although the relationship itself was significant. Consequently, it was proposed that commitment might lead to trust, rather than trust leading to commitment as initially proposed. A re-examination of the model demonstrated a reduction in the standard error for trust and support to 0.356 and between trust and continuity to 0.378.

If trust was dependent on commitment, then satisfaction might lead to commitment directly; an examination of this relationship provided an $R^2 = 0.516$, $SE = 0.626$, $F = 61.341$ for support and $R^2 = 0.480$, $SE = 0.371$, $F = 53.059$ for continuity, suggesting and confirming that an alternative model might better predict the relationship between Filipino potato farmers and their seed suppliers.

Conclusions.

While the model has yet to be tested in its entirety, it is apparent that some improvements in the structure of the model will greatly facilitate its ability to more accurately predict the nature of the long-term relationship between Filipino potato farmers and their respective seed suppliers. As predicted, there was a strong positive relationship between offer quality and the potato farmer's relationship satisfaction. Such would suggest that the more closely the seed quality dimensions (seed size, physiological age, seed sanitation and variety), delivery intent and price competitiveness of the seed supplier's offer meet the farmer's ideals, the more satisfied the potato farmer will be with the relationship. Relational satisfaction was also greatly improved by the relationship specific investments made by the seed supplier to provide education and training programs, to keep farmers informed on technical matters, supply problems and ware market prices, and to adapt the product offer to better meet the needs of potato farmers. Having a stable long-term relationship with the seed supplier was also observed to reduce the amount of uncertainty in the seed supply market and to increase relational satisfaction.

The literature confirms that developing and maintaining long-term relationships with suppliers can reduce uncertainty and elevate performance (Noordewier, John and Nevin 1990) Customers can gain access to markets and more reliable market information (Low 1996); customers can anticipate improved access to a more reliable supply of production

inputs (Hakansson 1982); improved product quality and performance (Han, Wilson and Dant 1993) and a higher level of technical interaction in the form of information exchange, potential product adaptations and technical assistance (Cunningham and Homse 1982). However, the literature also suggests that by becoming closer to customers and better understanding and satisfying customers needs, suppliers may also benefit from greater customer loyalty and higher repeat sales (Kalwani and Narayandas 1995; Leuthesser 1997).

The model confirms that there is a positive relationship between satisfaction and the potato farmer's desire to maintain a long-term relationship with their most preferred seed supplier. However, it would appear that the farmer's commitment to an on-going relationship is derived directly from satisfaction, rather than via trust as initially predicted. By definition, commitment involves the desire or intention to maintain a valued relationship into the future (Moorman, Zaltman and Deshpande 1992). Ganeson (1994) demonstrates how satisfaction with the outcomes of a relationship has a significant influence on the level of commitment to the relationship. Frazier (1983) suggests that satisfaction will have positive consequences for the relationship and Anderson and Narus (1990) indicate how satisfaction has been found to lead to the long-term continuation of relationships.

Commitment has been defined variously to include credible commitments, idiosyncratic investments and the dedicated allocation of resources (Anderson and Weitz 1992). Wherever a supplier makes a strong credible commitment to the relationship, customers perceive their partner as being more trustworthy (Ganeson 1994). The pledging of credible commitments cultivates trust and the development of social norms which, in turn, work to maintain the relationship (Gundlach, Achrol and Mentzer 1995). Thus, while Dwyer, Schurr and Oh (1987) suggests that trust leads to commitment, it is as equally plausible that commitment could lead to trust. Ganeson (1994) challenges the theory, suggesting that trust is a consequence of the relationship, rather than a determinant.

Nevertheless, trust remains a key relationship building variable, for, in the absence of a formal seed certification system, potato farmers in the Philippines have no guarantee that the seed they purchase will be of the desired variety, or that the seed will prove to be substantially free of pests and diseases. Since it is not possible to accurately judge seed tuber quality solely from an examination of its external features (Crissman and Hibon 1996), a farmer intending to purchase seed must rely upon the experience and expertise of those ware potato growers who are known to be good seed producers, or those seed producers who have supplied them in the past. Farmers show a marked preference to purchase seed from those seed suppliers who have provided them with good seed in the past. Current suppliers are perceived to be less risky, even although they do not necessarily provide the best seed, for the majority of farmers indicate that the overall quality of seed available from suppliers is well below that which they would consider ideal. Consequently, and irrespective of any long-term relationship, most potato farmers re-evaluate potential suppliers on every occasion that they purchase seed. Furthermore and despite the farmers ability to differentiate between alternative seed offers, farmers must often purchase from a number of suppliers, simply because the preferred seed supplier does not have seed available when the farmer requires it for planting, or in the quantities required.

Where trust is expected to be particularly significant is with regard to the credit arrangements negotiated between potato farmers and their seed supplier. Loans are advanced to farmers with the express intent of obtaining benefits derived from marketing the crop. However, most farmers express acute dissatisfaction at the prices the seed supplier is willing to pay for

the crop. To a large extent, the prices paid for the ware crop are dependent upon the market forces of supply and demand. Considerable price premiums are available for those farmers who are both willing and able to take the risk of growing the crop at the most difficult times of the year, or where they have the resources, to store the crop until market prices improve. Given the significant positive relationship between communication and trust, seed suppliers have the opportunity to significantly increase the amount of trust farmers place in them by providing more information about the nature of the ware potato market. Furthermore, by showing a willingness to adapt the product offer to better satisfy farmers needs and to provide education and training programs, seed suppliers can build greater trust.

Acknowledgments.

In the preparation of this paper the author wishes to thank Dr Nexhmi Rexha for his guidance in defining the model and Mr Des Klass for assistance in the statistical analysis.

References.

Achrol, R.S., T. Reve and L.W. Stern. 1983. The Environment of Marketing Dyads: A Framework for Comparative Analysis. *Journal of Marketing*. Vol 47 (Fall). 55-67.

Achrol, R.S. 1997. Changes in the Theory of Interorganisational Relations in Marketing: Toward a Network Paradigm. *Journal of the Academy of Marketing Science*. Vol 25(1). 56-71.

Anderson, E. and B.A. Weitz. 1986. Make-or-Buy Decisions: Vertical Integration and Marketing Productivity. *Sloan Management Review*. Spring. 3-19.

Anderson, E., W. Chu and B.A. Weitz. 1987. Industrial Purchasing: An Empirical Exploration of the Buyclass Framework. *Journal of Marketing*. Vol 51. July. 71-86.

Anderson, E. and B.A. Weitz. 1992. The Use of Pledges to Build and Sustain Commitment in Distribution Channels. *Journal of Marketing Research*. Vol 29. 18-34.

Anderson, J.C. and J.A. Narus. 1990. A Model of Distributor Firm and Manufacturing Firm Working Relationships. *Journal of Marketing*. Vol 54 (1). 42-58.

Athaide, G.A., P.W. Meyers and D.L. Wilemon. 1996. Seller-Buyer Interactions During the Commercialisation of Technological Process Innovations. *Journal of Product Innovation Management*. Vol 13. 406-421.

Balaoing, V.G. and F.D. Lazo. 1967. Irish Potato Production in the Philippines: Problems and Prospects. *Philippine Journal of Plant Industry*. Vol 32 (3-4). 195-216.

Beukema, H.P. and D.E. van der Zaag. 1990. *Introduction to Potato Production*. PUDOC. Wageningen. 208 pp.

Beukema, H.P. 1990. A Comparison of Different Seed Potato Production Systems in Rashid, M.M., M.A. Siddique and M.M. Hussain (Ed). *Seed Potato in Bangladesh*. Bangladesh-Netherlands Seed Multiplication Project. 43-62.

Blois, K.J. 1996. Relationship Marketing in Organisational Markets: When is it Appropriate? *Journal of Marketing Management*. Vol 12. 161-173.

Bunn, M.D. 1993. Taxonomy of Buying Decision Approaches. *Journal of Marketing*. Vol 57. January. 38-56.

Campbell, N.C.G. 1985. An Interaction Approach to Organisational Buying Behaviour. *Journal of Business Research*. Vol 13. 35-48.

Cardozo, R.N. and J.W. Cagley. 1971. Experimental Study of Industrial Buyer Behaviour. *Journal of Marketing Research*. Vol 8. 329-334.

Crissman, C. 1989. *Seed Potato Systems in the Philippines: A Case Study*. CIP. 82 pp.

Crissman, C. and A. Hibon. 1996. *Establishing Seed Potato Prices: Concepts, Procedures and Implications for Research and Training*. Social Science Department. Working Paper 1996-1. CIP. Peru

Cunningham, M.T. and J.G. White. 1973. The Determinants of Choice of Supplier. *European Journal of Marketing*. Vol 7 (Winter). 189-202.

Cunningham, M.T. and E. Homse. 1982. An Interaction Approach to Marketing and Purchasing Strategy in Hakansson, H. (Ed). 1982. *International Marketing and Purchasing of Industrial Goods. An Interaction Approach*. IMP Project Group. Wiley. 323-328.

Cunningham, M.T. and P.W. Turnbull. 1982. Inter-organisational Personal Contact Patterns in Hakansson, H. (Ed). 1982. *International Marketing and Purchasing of Industrial Goods. An Interaction Approach*. IMP Project Group. Wiley. 304-315.

Cunningham, M.T. 1982. Barriers to Organisational Interaction in Hakansson, H. (Ed). 1982. *International Marketing and Purchasing of Industrial Goods. An Interaction Approach*. IMP Project Group. Wiley. 358-368.

Della Vedova, O. and S. Brieva. 1995. Socio economic Methods for the study of Input Markets: Seed Potatoes in Argentina in Scott. GJ. Ed. *Prices, Products and People. Analysing Agricultural Markets in Developing Countries*. CIP. Lynne Rienner. London. 239-254.

Dempsey, W.A. 1978. Vendor Selection and the Buying Process. *Industrial Marketing Management*. Vol 7. 257-267.

Doney, P.M. and J.P. Cannon. 1997. An Examination of the Nature of Trust in Buyer-Seller Relationships. *Journal of Marketing*. Vol 61. April. 35-51.

Dwyer, F.R., P.H. Schurr and S. Oh. 1987. Developing Buyer-Seller Relationships. *Journal of Marketing*. April. 11-27.

Ellram, L.M. 1990. The Supplier Selection Decision in Strategic Partnerships. *Journal of Purchasing and Materials Management*. Fall. 8-14.

Feder, G., R.E. Just and D. Zilberman. 1985. Adoption of Agricultural Innovations in Developing Countries: A Survey. *Economic Development and Cultural Change*. Vol 33. 255-298.

Ford, D. 1982. Development of Buyer-Seller Relationships in Industrial Markets in Hakansson, H. (Ed). 1982. *International Marketing and Purchasing of Industrial Goods: An Interaction Approach*. IMP Project Group. Wiley. 288-303.

Ford, D. 1984. Buyer/Seller Relationships in International Industrial Markets. *Industrial Marketing Management*. Vol 13. 101-112.

Frazier, G.L. 1983. Interorganisational Exchange Behaviour in Marketing Channels: A Broadened Perspective. *Journal of Marketing*. Vol 47 (Fall). 68-78.

Frazier, G.L., J.D. Gill and S.H. Kale. 1989. Dealer Dependence Levels and Reciprocal Actions in a Channel of Distribution in a Developing Country. *Journal of Marketing*. Vol 53 (January). 50-69.

Ganeson, S. 1994. Determinants of Long-Term Orientation in Buyer-Seller Relationships. *Journal of Marketing*. Vol 58 (April). 1-19.

Gaski, J.F. 1984. The Theory of Power and Conflict in Channels of Distribution. *Journal of Marketing*. Vol 48 (Summer). 9-29.

Gayao, B.T., A.T. Botangen, J. Dati, H. L. Quindara, D.T. Meldoz and J.V. Sim. 1997. *Farm-level Assessment of Potato Production, Marketing and Utilisation in the Highlands of Northern Philippines*. Northern Philippines Root Crops Research and Training Center. Benguet State University. 23 pp.

Gundlach, G.T., R.S. Achrol and J.T. Mentzer. 1995. The Structure of Commitment in Exchange. *Journal of Marketing*. Vol 59 (January). 78-92.

Hakansson, H. and B. Wootz. 1975. Supplier Selection in an International Environment - An Experimental Study. *Journal of Marketing Research*. Vol 12 (February). 46-51.

Hakansson, H., J. Johanson and B. Wootz. 1977. Influence Tactics in Buyer-Seller Processes. *Industrial Marketing Management*. Vol 5. 319-332.

Hakansson, H. and B. Wootz. 1979. A Framework of Industrial Buying and Selling. *Industrial Marketing Management*. Vol 8. 28-39.

Hakansson, H. (ed). 1982. *International Marketing and Purchasing of Industrial Goods: An Interaction Approach*. IMP Project Group. John Wiley and Sons. 406 pp.

Hallen, L., J. Johanson and N. Seyed-Mohamed. 1991. Interfirm Adaptation in Business Relationships. *Journal of Marketing*. April. 29-37.

Han, S.L., D.T. Wilson and S.P. Dant. 1993. Buyer-Supplier Relationships Today. *Industrial Marketing Management*. Vol 22. 331-338.

Heide, J.B. and G. John. 1988. The Role of Dependence Balancing in Safe-Guarding Transaction-Specific Assets in Conventional Channels. *Journal of Marketing*. Vol 52 (January). 20-35.

Heide, J.B. and G. John. 1990. Alliances in Industrial Purchasing: The Determinants of Joint Action in Buyer-Seller Relationships. *Journal of Marketing Research*. February. 24-36.

Heide, J.B. 1994. Interorganisational Governance in Marketing Channels. *Journal of Marketing*. Vol 58 (January). 71-85.

Horton, D. 1987. *Potatoes. Production, Marketing and Programs for Developing Countries*. Westview Press.

Hutt, M.D. and T.W. Speh. 1995. *Business Marketing Management. A Strategic View of Industrial and Organisational Markets*. Fifth Ed. Dryden Press.

Jackson, B. B. 1985. Build Customer Relations That Last. *Harvard Business Review*. November-December. 120-128.

Kalwani, M.U. and N. Narayandas. 1995. Long-Term Manufacturer-Supplier Relationships: Do They Pay Off for Supplier Firms? *Journal of Marketing*. Vol 59 (January). 1-16.

Kool, M. 1994. *Buying Behaviour of Farmers*. Wageningen Pers. Wageningen.

Kool, M., M.T.G. Meulenbergh and D. Broens. 1997. Extensiveness of Farmers Buying Processes. *Agribusiness*. Vol 13(3). 301-318.

Krapfel, R.E., D. Salmond and R. Spekman. 1991. A Strategic Approach to Managing Buyer-Seller Relationships. *European Journal of Marketing*. Vol 25(9). 22-37.

Kumar, N. 1996. The Power of Trust in Manufacturer-Retailer Relationships. *Harvard Business Review*. November-December. 92-106.

Leenders, M.R. and H.E. Fearon. 1993. *Purchasing and Materials Management*. Tenth Edition. Irwin.

Lehmann, D.R. and J. O'Shaughnessy. 1974. Difference in Attribute Importance for Different Industrial Products. *Journal of Marketing*. Vol 38 (April). 36-42.

Leuthesser, L. 1997. Supplier Relational Behaviour: An Empirical Assessment. *Journal of Marketing Management*. Vol 26. 245-254.

Low, B.K.H. 1996. Long-Term Relationship in Industrial Marketing. Reality or Rhetoric? *Industrial Marketing Management*. Vol 25. 23-35.

McQuiston, D.H. 1989. Novelty, Complexity and Importance as Causal Determinants of Industrial Buyer Behaviour. *Journal of Marketing*. Vol 53 (2). 66-79.

Mohr, J. and J.R. Nevin. 1990. Communication Strategies in Marketing Channels: A Theoretical Perspective. *Journal of Marketing*. Vol 54 (October). 36-51.

- Monares, A. 1981. *The Potato Seed System in the Andean Region: The Case of Peru*. Unpublished PhD thesis. Cornell University.
- Moorman, C., R. Deshpande and G. Zaltman. 1993. Factors Affecting Trust in Market Research Relationships. *Journal of Marketing*. Vol 57 (January). 81-101.
- Morgan, R.M. and S.D. Hunt. 1994. The Commitment-Trust Theory of Relationship Marketing. *Journal of Marketing*. July. 20-38.
- Morris, M.H., J. Brunyee and M. Page. 1998. Relationship Marketing in Practice. Myths and Reality. *Industrial Marketing Management*. Vol 27. 359-371.
- Noordewier, T.G., G. John and J.R. Nevin. 1990. Performance Outcomes of Purchasing Arrangements in Industrial Buyer-Vendor Relationships. *Journal of Marketing*. (October). 80-93.
- Nunnally, J.C. 1978. *Psychometric Theory*. Second Ed. McGraw Hill. New York.
- Oliver, C. 1990. Determinants of Interorganisational Relationships: Integration and Future Directions. *Academy of Management Review*. Vol 15(2). 241-265.
- Puto, C.P., W.E. Patton III and R.H. King. 1985. Risk Handling Strategies in Industrial Vendor Selection Decisions. *Journal of Marketing*. Vol 49 (Winter). 89-98.
- Rasco, E.T. 1994. *Coordinators Report. July 1993 - June 1994*. SAPPRAD. September.
- Tagarino, D.D., E.B. Cungihan and J.B. Paday-os. 1998. *Analysis of the Credit Market for Potato Production and Marketing in the Cordillera Administrative Region*. HARRDEC. Benguet State University.
- Turnbull, P.W. and D.T. Wilson. 1989. Developing and Protecting Profitable Customer Relationships. *Industrial Marketing Management*. Vol 18. 233-238.
- van der Zaag, D.E. 1990. Research and Developments in Seed Potato Production Systems and its Implications in Bangladesh in Rashid, M.M., M.A. Siddique and M.M. Hussain (ed). *Seed Potato in Bangladesh*. Bangladesh-Netherlands Seed Multiplication Project. 90-99.
- Webster, F.E and Y. Wind. 1972. A General Model for Understanding Organisational Buying Behaviour. *Journal of Marketing*. Vol 36 (April). 12-19.
- Wilson, D.T. 1995. An Integrated Model of Buyer-Seller Relationships. *Journal of Academy of Marketing Science*. Vol 23(4). 335-345.

Appendix One

	Mean	SD	Factor loading
Offer quality			
Reliable delivery			
I seed supplier is able to meet any immediate needs I may have	5.25	0.61	0.809
My seed supplier delivers when I want it	5.28	0.64	0.805
I prefer to purchase from local seed suppliers	6.31	0.81	0.538
Competitive pricing			
I choose a supplier who is able to offer favourable terms of repayment	6.94	0.35	0.812
I choose a supplier who is able to provide seed that is competitively priced	6.91	0.36	0.791
I choose a supplier who is financially strong	6.96	0.22	0.617
I choose a supplier who is able to offer credit	6.73	0.67	0.565
I choose a supplier who is able to provide other farm inputs	6.12	0.72	0.517
Seed quality			
Seed from my preferred seed supplier is consistently good	5.69	0.71	0.830
My preferred seed supplier provides the best seed	5.92	0.63	0.824
The seed I obtain from my seed supplier substantially improves the productivity of my potato crop	5.74	0.58	0.791
Satisfaction			
Stability			
Having a long-term relationship with my preferred seed supplier reduces the uncertainty of supply in the seed market	5.47	0.87	0.834
Seed prices from my preferred seed supplier are more stable	5.50	0.91	0.830
I have been able to reduce my total costs of potato production as a result of my relationship with my preferred seed supplier	5.50	0.69	0.771
My relationship with my seed supplier is very stable	4.87	0.77	0.732
Adequate reward			
I actively search for alternative seed suppliers	2.70	1.36	0.842
I feel I am adequately rewarded by my preferred seed supplier	4.36	0.70	0.803
My seed supplier purchases my ware potatoes at a mutually agreed price	1.81	1.48	0.795
I frequently reject other seed suppliers offers	2.36	0.98	0.755

	Mean	SD	Factor loading
Expectations			
My seed supplier often meets my expectations	5.44	0.65	0.844
There is good cooperation between my seed supplier and myself	5.99	0.58	0.626
The benefits that I receive from maintaining my relationship with my seed supplier exceed those that I can obtain elsewhere	5.47	0.77	0.623
Dealing with my seed supplier is less risky	5.75	0.58	0.588
Referable			
I often refer other farmers to my preferred seed supplier	6.03	0.37	0.865
My preferred seed supplier is quick to handle complaints	5.95	0.39	0.842
Trust			
I have confidence in my seed supplier	5.98	0.37	0.833
I believe in the information provided by my preferred seed supplier	5.74	0.55	0.779
My preferred seed supplier always keeps his promises	5.59	0.64	0.743
I believe that my seed supplier has the necessary expertise to provide good quality seed	6.12	0.51	0.718
My supplier has a good reputation for being honest	5.94	0.40	0.701
Commitment			
Support			
My preferred seed supplier is willing to share the risks of crop failure	4.70	1.16	0.892
My preferred seed supplier is willing to help me grow potatoes	4.71	1.06	0.887
When seed is scarce, my preferred seed supplier does everything possible to satisfy my needs	4.26	0.86	0.828
My preferred seed supplier provides financial assistance during difficult times	3.67	1.05	0.823
Continuity			
I expect to continue to interact with my preferred seed supplier in the future	6.88	0.53	0.989
I expect my relationship with my preferred seed supplier to continue	6.89	0.50	0.986

	Mean	SD	Factor loading
Communication			
Kept informed			
My preferred seed supplier keeps me well informed on technical matters	3.29	0.97	0.924
My preferred seed supplier keeps me well informed of prices in the ware market	3.26	0.90	0.907
My preferred seed supplier regularly meets with our farmer group	3.56	0.98	0.870
The majority of communication between myself and my preferred seed supplier occurs through written communication	1.32	0.77	0.787
My preferred seed supplier often advises me of potential supply problems	3.79	0.89	0.698
Ease of contact			
Its relatively easy to contact my preferred seed supplier	6.10	0.46	0.982
Advice			
I look to my preferred supplier for advice on what variety to grow	5.46	1.10	0.990
Adaptations			
Customer orientation			
My preferred seed supplier willingly adapts his product offer to meet my needs	4.87	0.72	0.931
My preferred seed supplier frequently asks how he might improve the level of product quality and service	4.68	0.87	0.834
My preferred seed supplier aims to provide seed when I need it	4.87	0.68	0.814
Supplier orientation			
My preferred seed supplier spends more time trying to persuade me to accept his product offer rather than to analyse my seed requirements	3.93	0.60	0.979
Education and training			
My preferred seed supplier regularly provides training programs	2.09	1.32	0.925
My preferred seed supplier has a field demonstration area	2.17	1.35	0.934
Reciprocal buying			
I choose a supplier who buys my ware potato crop	4.20	0.93	

	Mean	SD	Factor loading
Uncertainty			
Seed specifications			
I am unable to discern any tangible difference between the seed I source from my preferred seed supplier and that which I can obtain elsewhere	2.15	0.88	0.853
My seed requirements have changed since I last purchased seed	2.31	1.06	0.834
I seldom specify my seed requirements	2.25	1.08	0.796
Input market uncertainty			
Seed prices in the market are very unstable	5.46	0.89	0.947
The supply of seed is highly unstable	5.23	1.01	0.930
Importance of the purchase			
Supplier evaluation			
Before deciding to purchase seed, I spend a lot of time gathering information from my preferred seed supplier and other seed suppliers	6.76	0.61	0.880
I re-evaluate potential suppliers every time I buy seed	6.49	0.78	0.879
Economic consequences			
I buy seed from my seed supplier at least one time per year	4.71	1.21	0.858
Seed is the most significant cost of production	5.10	0.96	0.816
Duration of the relationship			
I have a close personal relationship with my preferred seed supplier	4.46	1.03	0.868
My preferred seed supplier and I have a good long-standing relationship	5.20	1.17	0.866

	Mean	SD	Factor loading
Dependence			
Independence			
My preferred seed supplier determines what varieties I grow, when I plant and when I harvest	1.22	0.63	0.919
My preferred seed supplier controls all the information in our relationship	1.26	0.73	0.913
My preferred seed supplier has all the power in our relationship	1.24	0.70	0.902
If my relationship with my preferred seed supplier was suddenly terminated, I would have great difficulty finding an alternative supplier	1.57	1.14	0.831
I have no choice other than to adhere to my seed suppliers demands	1.31	0.87	0.828
My preferred seed supplier provides all the inputs for my potato crop	1.44	0.90	0.765
Availability of alternatives			
I source seed from a number of suppliers	4.17	1.16	0.783
I am free to choose another seed supplier at any time	6.40	0.78	0.770
I can choose between several seed suppliers	6.22	0.85	0.717
Comparison to alternatives			
My preferred seed supplier has the best seed offer relative to the alternatives	5.71	0.75	0.927
Social norms			
Goal compatibility			
I discuss my business plans with my preferred seed supplier	3.63	1.20	0.855
My preferred seed supplier often suggests that we aim to coordinate our production plans	4.38	0.90	0.854
My preferred seed supplier and I share similar goals	4.40	0.80	0.784
My preferred seed supplier is a close personal friend	4.43	1.09	0.680
Mutuality			
My relationship with my preferred seed supplier is based on mutual benefit and trust	6.51	0.68	0.876
Staying together in the face of adversity is important to my preferred seed supplier and myself	6.10	0.74	0.786
Opportunistic behaviour			
My preferred seed supplier often acts opportunistically	4.03	0.83	0.910

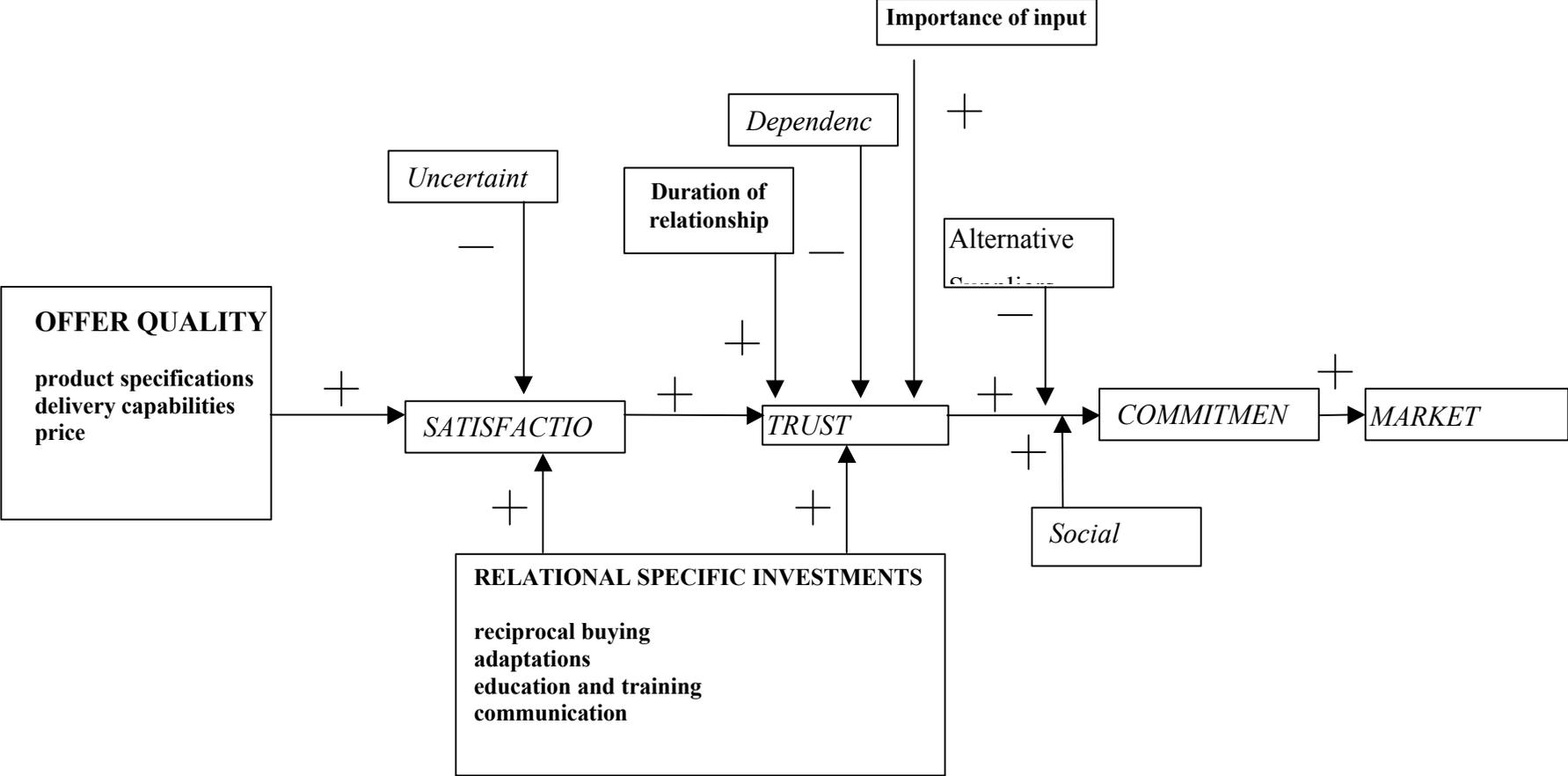


Figure 1: Model of Buyer-Seller Relationships in the Filipino Seed Potato Industry