

## Comparison of High and Low Performance Wheat Growers with Respect to Their Locus of Control

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### ABSTRACT

The locus of control is a construct reflecting beliefs about the control of behavior and life events. According to this perception, people are grouped into two main categories: an internal and external locus of control. The main purpose of this study was to investigate the relationship between wheat yield performance, locus of control and wheat growers' (WG) characteristics. Survey research methodology and two stages of stratified random sampling were used as research and sampling method, respectively. A questionnaire was used as the research instrument and 217 sampled wheat growers (106 and 111 high and low performance, respectively) were interviewed from the eight districts of Shiraz Province. The validity and reliability of the questionnaire were evaluated and confirmed. Descriptive and inferential statistics were used for analyzing data, using statistical package for social sciences (SPSS). Based on the findings, yield performance and internal locus of control had a significant and positive relationship. On the other hand, variables such as educational level, accessing information sources, cosmopolitanism achievement motivation and interest in agriculture showed positive and significant relationships with yield performance. Regression has revealed that three variables are strong predictors for yield performance in wheat: achievement motivation (%47.3), cosmopolitanism (%2.6) and accessing information sources (%2.1). Educational level and accessing information sources showed a positive correlation, whereas age had a negative and significant relationship with internal locus of control. As a result, it can be said that psychological and behavioral parameters affect farm management and production as well as physical and natural factors.

**Keywords:** Achievement motivation, Attribution theory, Locus of control, Wheat growers.

### INTRODUCTION

Motivation drives and controls a wide range of human behavior. According to Zamani, researchers have stated that motivation is a process involving three stages:

- 1- Arousing motivation (energizing human behavior);
- 2- Directing motivation to the determined goal and guiding the behavior (directing the behavior);
- 3- Sustaining the behavior or continuation and preservation of motivation over the

long-term (Zamani, 1992).

According to Zamani, we usually do not have serious problems in the first two stages (arousing and directing motivation). The most difficult stage is sustaining motivation which has been given less attention. Different theories have been postulated for each stage; for example, the Hedonism Theory, Instincts Theory, Drives Theory, Human's Need Theory and Activation Theory (Arousal Theory) have all been applied to the first stage; the Expectancy Theory and Goal Setting Theory are used in the second

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stage; and, finally, the Reinforcement, Social Comparison and Attribution Theories are applied to the third stage (Zamani, 1992).

The Attribution Theory is important in understanding how people (including farmers) might interpret their level of performance in academic tasks, producing farm products and so on, and how to use feedback on their performance (Slavin, 1986). We do not often make an effort to think carefully about our attributions (Brehm and Kassim, 1993). Once a cause, or causes, is assigned, effective management strategies may be possible and a prescription or guidelines for future action may be suggested (Weiner, 1985).

If we as extension professionals are to interact effectively with farmers, we need to know how farmers feel and think about their surroundings. But, in order to understand people well enough to predict their future behavior, we must also try to identify their disposition-stable characteristics such as personality traits, attitudes and abilities. Since we cannot actually see dispositions, we can only infer them from what a person says and does (Brehm and Kassim, 1993). One concept central to Attribution Theory is the *locus of control* (Slavin, 1986). These two notions (Attribution Theory and locus of control) are closely related to each other (Fanelli, 1977).

Since its introduction by Rotter in 1954, the locus of control concept has received practical consideration in relation to motivation (Khayyer, 1991; Fanelli, 1977; Janicak, 1996). Rotter's originated Internal-External locus of control (I-E) scale has aimed to measure people's generalized expectancy for control across situations. Measures of generalized expectancy allow prediction in many situations and may be thought of as important defining personality characteristics (Ludtke and Schineider, 1996). According to Fanelli, the term 'locus of control' refers to the perceived causality of behavioral outcomes (Fanelli, 1977). According to Fanelli (1977: 48), and Rotter states that the probability of certain behavior occurring will vary with the person's level of expectancy

regarding the outcome of that behavior. This rule can be viewed as:

$$PB = f(E) + r.v.$$

Where *PB* is probability of behavior, *f* (*E*) is the function of expectancy, and *r.v.* is the reinforcement value.

Rolling (1988), asserted that in addition to traditional cultural patterns, traditional social control and leadership, a host of psychological factors such as empathy, fatalism, and an external locus of control are suggested as explanations for resistance to change.

### The Concept of Locus of Control

"Locus" means "location". The locus of control is a construct reflecting belief and perception about the control of behavior and life events. Belief in personal control is both a general predisposition that influences behavior across a wide range of situations and a rather specific set of beliefs that may apply to a more limited situation (Janicak, 1996).

Rotter, who established the locus of control theory, grouped people in two main categories:

#### Internal Locus of Control

Those who generally attribute their success or failure to their own behavior are said to have an internal locus of control. (in other words, internal control refers to the perception of events as the consequence of one's own action and thereby under ones personal control).

An individual with an internal locus of control believes that his/her success or failure is more related to his/her effort, aptitude and ability (Gage and Berliner, 1992; Slavin, 1986; Zuckerman, 1979; Fry and Ghosh, 1980; Fanelli, 1977). Such people are attracted by situations in which they believe that their personal abilities can exert a control over the environment (Chebat, Zuccaro and Filiatrault, 1992: 598).

Fanelli concludes that: internals have a longer future time perspective than externals



have, that is, internals have an extensive view of time, and they are likely to be high achievers (Fanelli, 1977). Because internally controlled individuals are more sensitive to environmental information than externally controlled individuals are, the relation between actions and consequences has some definite effects on internally controlled individuals' search for information. Since internally controlled individuals feel that information enhances their efficiency, they search for more information (Chebat, Zuccara and Filiatrault, 1992). Spector (1982) proposed that internally controlled individuals prove to be more successful at work because:

a- They have a stronger belief in the relationship between efforts and rewards.

b- They search for more information more effectively than externally controlled individuals. Many studies confirm these hypotheses (Chebat, Zuccara and Filiatrault, 1992).

Chebat *et al.* (1992) with the support of nine empirical studies have confirmed that internal managers not only search for more information but they also rely on different sources for their information - professional, written, electronic - rather than on friends or relatives. They have a strong self-image, perceiving themselves as more competent, with higher expectations of success.

According to Chebat (1992), internally controlled top managers were more inclined to take risks and accept innovations and were less conservative. They tend to use more intensively their talents as influencers to persuade employees; as where externally controlled leaders tend to use more coercion. This was due to the fact that externals believe that only external pressure can be efficient in changing behavior.

Another study declares that internal scorers show higher scores on measures of coping and adjustment, and individuals with habit disorders are more likely to score external in their expectancies for control, perceiving a loss of control of their behavior (Ludtke and Schineider, 1996).

### External Locus of Control

Those who generally attribute their success or failure to luck or task difficulty or other people's action or environment are said to have an external locus of control (that is, external control refers to the perception of events as being unrelated to one's behaviors) (Karnes and McGinnis, 1996; Gage and Berliner, 1992; Slavin, 1986; Fry and Ghosh 1980; Zuckerman, 1979; Fanelli, 1977). These relatively stable patterns of behavior are associated with many other personal characteristics (Gage and Berliner, 1992). An individual with an external locus of control believes that his/her success or failure is more related to external and environmental factors such as luck, task difficulty or other people (Gage and Berliner, 1992; Khayyer, 1991; Slavin, 1986; Zuckerman, 1979; Fry and Ghosh, 1980; Fanelli, 1977).

Several major psychosocial studies show that individuals' learning processes are negatively affected if they believe that they have no control over reinforcements that they have received (Chebat, Zuccara and Filiatrault, 1992). Externals do not establish a relationship between their actions and the consequences of their action (Chebat, Zuccara and Filiatrault, 1992; Khayyer, 1991). In contrast to the first group, they have a reduced interest in information and may make no effort to acquire more information (Chebat, Zuccara and Filiatrault, 1992). Investigations show that externals have a restricted view of time. These people, who view time as the present only, are not likely to be high achievers. So externals might be less achievement-oriented than internals are. Externals, in contrast to internals, have been found to be more anxious, more aggressive, more dogmatic, less trusting, more suspicious of others, less confident, and less insightful (Fanelli, 1977). It should be mentioned that in fact there has not been any application of "Locus of Control" Theory to Iranian farmers.



This research project was designed to investigate the relationship between wheat growers' locus of control and their wheat yield performance, as well as measuring the relationship between some selected personal characteristics of farmers with their locus of control.

## MATERIALS AND METHODS

Survey research methodology was used in this study. The Cochran formula suggested 105 subjects for each LPWG and HPWG. Evenly collected data recommended at least two farmers as LPWG and the same for HPWG from 57 villages out of the eight districts to be interviewed. So, the study was conducted in 57 villages in 8 districts of Shiraz Province. The eight districts are: Houmeh, Zarghan, Kavar, Sarvestan, Kherameh, Daryon, Seyakh and Khanezenyan. Shiraz Province has a total of nearly 6000 hectares of irrigated wheat farming. According to statistics at Shiraz Agricultural Management Office, the highest and the lowest wheat farming performances are in Zarghan and Khanezenyan, respectively.

The population included all irrigated wheat growers in Shiraz Province, who cultivated wheat using a similar method. Considering the heterogeneity between the eight districts from the viewpoints of climate, soil etc., a two-stage stratified random sampling was used as a sampling method. At the first stage, Shiraz was divided into eight districts, and then wheat growers were divided into two groups: high performance wheat growers (HPWG) as successful wheat growers and low performance wheat growers (LPWG) as unsuccessful wheat growers. For a more reasonable and scientific analysis and conclusion, almost equal number of two groups were randomly selected and interviewed in each of the eight districts. In total, 106 high performance wheat growers (as successful wheat growers) and 111 low performance wheat growers (as unsuccessful wheat growers) were interviewed.

A questionnaire was used as the research instrument for collecting data with closed-ended questions, as well as one open-ended question. According to Borg and Gall (1983, 276), face validity is more suitable for this kind of study. Hence, face validity of the instrument was confirmed by three experts. To assess reliability, two pilot studies were conducted. Subjects of pilot studies were from the target population and were chosen randomly. After developing the primary questionnaire, the first pilot study was conducted and, after major revisions, a new instrument was developed for the second pilot study. The subjects of both pilot studies were 4 and 29 Marvdasht wheat growers, respectively. The final questionnaire was developed to collect data. The questionnaire consisted of two main sections. The first section included some questions about demographic characteristics (age, educational level, etc.) and some questions about their wheat yield performance (kg/ha), farm size, farm parts and so on. The second section consisted of five scales: locus of control scale (discussed below), interest in agriculture scale (seven items, Likert type, Cronbach's Alpha= 0.80), tendency to migration scale (three items, Likert type, Cronbach's Alpha= 0.89), attitude toward extension agent scale (four items, Likert type, Cronbach's Alpha= 0.80), achievement motivation scale (seven items, Likert type, Cronbach's Alpha= 0.76) and also seven questions regarding exposure to information sources (demonstration field, leaflet, TV and radio agricultural programs, extension classes and individual contact with extension agents) and a question about level of cosmopolitanism.

The Locus of Control variable was measured against a scale developed from thirteen false and true items (with values of 0 and 1). By adding the score of these thirteen items, the farmer's score on the locus of control was calculated. The locus of control scale was assessed to be reliable according to Cronbach's Alpha ( $r = 0.88$ ).



**RESULTS AND DISCUSSION**

**Comparison of Demographics and Farm Characteristics of the Subjects**

**Educational Level**

Table 1 shows that, although the mean of educational level for both groups (HPWGs and LPWGs) is low (1.8 and 1.15 on a six point likert scale 0-5), the difference is significant ( $P < 0.001$ ). It means that HPWGs are more literate than LPWGs (even where the educational level of both groups is low).

Crosstabulation in Table 2 showed that 59% of LPWGs are mostly illiterate (44.5% + 14.5%). In other words, only 41% of LPWGs are literate (29% + 10% + 6%). On the other hand, 65% (34% + 21% + 9% + 1%) of HPWGs are literate. In fact, more literate farmers are more capable of acquiring information from various sources and so they can be more efficient farmers.

**Types of Wheat Farm**

Usually there are three types of wheat farmers: owner operating farm, cash rental farm and share-cropping farm. There were

no significant differences between HPWGs and LPWGs based on farm ownership. The means of total farm size are not significantly different between two groups (Table 3).

**Farm Quality Advancement**

Wheat growers were asked to evaluate their farm quality in comparison with other farms in their village. Their answers were rated from 1 to 5 (1=Very weak, 2= Weak, 3= Moderate, 4= High, 5= Very high quality). According to their answers, there were no significant differences between HPWGs and LPWGs ( $M_1 = 3.87$ ,  $M_2 = 3.86$ ). Land fragmentation was another objective of this study, and the findings show no difference between the two groups (Table 4).

**Inferential Analysis**

**Wheat Yield Performance**

Since the average wheat yield performance in each district is different, labeling them as high and low performance is not applicable. For example, if a wheat grower in Zarghan produces 4.5 tons per hectare, he is a LPWG. But if a farmer in Seyakh produces

**Table 1.** Comparison of demographic characteristics between HPWGs<sup>a</sup> and LPWGs<sup>b</sup>.

Variable	HPWGs(n=106)		LPWGs(n=111)		T	P
	Mean	Sd	Mean	Sd		
Age	37.3	13.8	40.5	15.2	-1.6	0.112
Educational level	1.8	1.34	1.15	1.24	3.68	0.000

Note: The range of educational level score is between 0-5.

<sup>a, b</sup> High and low performance wheat Growers, respectively.

**Table 2.** Distribution of educational level of HPWGs<sup>a</sup> and LPWGs<sup>b</sup> (percent).

	Illiterate	Little literate	Primary school	Guidance school	Diploma	Higher education	Total
HPWGs	28	7	34	21	9	1	100
LPWGs	4.5	14.5	26	9.1	5.5	0	100
Total	36.6	10.6	30.1	15.3	6.9	0.5	100

$\chi^2 = 15.5$ ,  $P = 0.0084$ .

<sup>a, b</sup> High and low performance wheat Growers, respectively



**Table 3.** Comparison of HPWPs<sup>a</sup> and LPWGs<sup>b</sup> regarding types of farm (ha).

	HPWGs		LPWGs		T	P
	Mean	Sd	Mean	Sd		
Owner operating farm	3.63	4.97	2.8	3.6	1.41	0.161
Cash rental farm	0.16	0.863	0.71	3.2	-1.73	0.86
Share cropping wheat farm	1.45	4.24	1.18	4.16	0.48	0.633
Total farm size	5.3	5.6	4.7	5.9	0.71	0.48

<sup>a, b</sup> High and low performance wheat Growers, respectively

**Table 4.** Comparison of farm quality and number of farm fragments between HPWPs<sup>a</sup> and LPWGs<sup>b</sup>.

	HPWGs(n=106)		LPWGs(n=111)		T	P
	Mean	Sd	Mean	Sd		
Farm quality	3.87	0.438	3.86	0.547	0.05	0.964
Number of farm	1.94	1.52	2.17	1.47	-1.12	0.265

<sup>a, b</sup> High and low performance wheat Growers, respectively

4.5 ton/hectare, he is a HPWG. So, in order to compare wheat growers in eight districts, the Z score of wheat yield was computed.

Findings show that an internal locus of control has a positive and significant ( $r=0.60$ ,  $P<0.0001$ ) relationship with wheat yield. Those whose performances are high have a more internal score on the Internal-External locus of control scale.

As mentioned before, internal person blames himself for his failures and accepts praise for his success. The external person will not blame himself for his shortcomings and will not think his success is the result of his own efforts.

These findings were supported by Chebat *et al.* (1992) and Fanelli's (1977), Slavin's (1982) and Karnes and McGinnis (1996) studies. According to Chebat *et al.* (1992), since internally controlled individuals are more sensitive to environmental information than externally controlled individuals, they research more, because they expect to succeed. On the other hand, success and failure are more important for internal than for external persons.

### Personal Characteristics

In addition to attribution factors, it seems

that personal factors are also important in yield performance (Table 5). Educational level ( $r = 0.20$ ), exposure to information sources ( $r = 0.42$ ), cosmopolitanness (according to number of travels to cities) ( $r = 0.42$ ), interest in agriculture ( $r = 0.31$ ) and achievement motivation ( $r = 0.68$ ) are significantly correlated with yield performance (Table 5). Wheat growers whose educational level is higher produce more products. Moreover access to more information sources, increases their knowledge and causes more efficient production.

According to the other parts of findings, in all of the main six information sources (demonstration field, leaflet, radio program, TV program, extension class and face-to-face contact) the frequency of HPWGs accessing information sources is more than LPWGs (Table 6). In the other words, HPWGs get in touch with more information sources than LPWGs. The findings also show that, overall, wheat growers are in touch with agricultural TV and radio programs more than other sources and leaflets were used less than other agricultural information sources. This can be explained by the low educational level of WGs or it may be due to irregular distribution of agricultural leaflets.



**Table 5.** Correlation between wheat yield performance and farmers' personal characteristics.

Variables	r	P
Educational level	0.20	0.002
Age	-0.11	0.048
Exposure to information sources	0.42	0.000
Cosmopolitaness	0.42	0.000
Achievement motivation	0.68	0.000
Interest in agriculture	0.31	0.000
Attitude toward extension agent	0.11	0.055
Tendency to migrate	-0.01	0.445

**Table 6.** Percent of HPWGs<sup>a</sup> and LPWGs<sup>b</sup> who have got in touch with various information sources

	D.F.	A.L.	A.R.P.	A.TV.P.	E.C.	F.F.C.
HPWGs (%)	44.9	17.8	94.4	93.5	21.5	90.7
LPWGs (%)	18.2	6.4	80.9	87.3	9.1	59.1
Total	31.3	12	87.6	90.3	15.2	79.3

Note: D.F.= Demonstration field, A.L.= Agricultural leaflet, A.R.P.= Agricultural radio program, A.TV.P.= Agricultural TV program, E.C.= Extension class, F.F.C.=Face- to- face contact with extension agent.

<sup>a, b</sup> High and low performance wheat Growers, respectively

Urban experience gives farmers more extensive insight and improves their communication skills and knowledge. One of the most important factors is achievement motivation. Achievement motivation is the best discriminator between successful and unsuccessful people. Farmers who have no achievement motivation do not try hard and so they surely can not succeed.

According to the findings, age of wheat growers has a negative and significant relationship with their performance ( $r = -0.11$ ). This means older farmers have lower wheat yield performance. It might be due to their lower physical strength and education.

However, there isn't any significant correlation between yield performance and attitude toward extension agents and tendency to migration. It was expected that those whose attitude toward extension agents is higher would produce more products. Also, it was expected that those who produce more products would be more interested to migrate because of their better economic conditions and extensive view. Achievement motivation explains 47.3 percent of variability

in yield while cosmopolitaness, exposure to information sources, interest in agriculture can explain 2.6, 2.1 and 1.1 percent of variability in yield performance, respectively (Table 7). In fact, achievement motivation is the best predictor among the other independent variables.

Locus of control as the perception for justifying one's behavior is affected by several factors. Some of the main personal factors were studied in this study. The results show there is a significant positive correlation between education level ( $r = 0.41$ ), exposure to information sources ( $r = 0.37$ ), cosmopolitaness ( $r = 0.36$ ), achievement motivation ( $r = 0.75$ ), and interest in agriculture ( $r = 0.33$ ) with internal locus of control. Age has a negative relationship with locus of control ( $r = -0.23$ ,  $P = 0.000$ ). It means that as farmers get older they attribute the causes of their behavior more to external factors.

Attitude toward extension agents have a significant relationship with the internal locus of control score although a tendency to migrate didn't show any significant relation with locus of control ( $r = -0.07$ ). This find-



**Table 7.** Stepwise multiple regression on yield performance.

Independent variables	b	Std error b	beta	p
Achievement motivation	0.087	0.0099	0.521	0.0000
Cosmopoliteness	0.021	0.0061	0.176	0.0001
Exposing to information sources	0.146	0.049	0.159	0.0033
Interest in agriculture	0.020	0.0094	0.106	0.0396
Constant = 1.89 ; F = 56.54 ; Significant = 0.0000				
Step	Summary statistics			
	Multiple R	R <sup>2</sup>	R <sup>2</sup> Adjust	R <sup>2</sup> Changed
Achievement motivation	0.688	0.473	0.471	0.473
Cosmopoliteness	0.706	0.499	0.494	0.026
Exposing to information sources	0.721	0.520	0.513	0.021
Interest in agriculture	0.728	0.531	0.521	0.011

ing was not consistent with Hins's (1974) study: students planning to move out of state were significantly more internally controlled than individuals planning no mobility.

The stepwise multiple regression between locus of control as a dependent variable and personal factors as independent variables, is a good procedure for evaluation. In other words, R<sup>2</sup> values will yield the appropriate information. It displays that only three independent variables (achievement motivation, educational level and interest in agriculture) contributed significantly to prediction of locus of control (Table 8). The three independent variables explain 61.4 % of the variability in the locus of control. Achievement motivation explains 57.9 percent of variability in the locus of control, while edu-

cational level and interest in agriculture explain only 1.8% and 1.7% of variability in the locus of control, respectively. Another five independent variables (age, cosmopoliteness, exposure to information sources, attitude toward extension agent and tendency to migration) didn't qualify for inclusion in the equation. It means that they cannot reliably improve the R<sup>2</sup> value. According to the findings, achievement motivation is the most important variable in explaining variability in locus of control.

### CONCLUSION

There are many determining factors that influence farm yield. Many people consider farm inputs as major factors in farm prod-

**Table 8.** Stepwise multiple regression on locus of control.

Independent variables	b	Std error b	Beta	p
Achievement motivation	0.426	0.0336	0.649	0.0000
Educational level	0.513	0.146	0.171	0.0006
Interest in agriculture	0.104	0.034	0.143	0.0027
Constant = -5.53 ; F = 106.64 ; Significant = 0.0000				
Step	Summary statistics			
	Multiple R	R <sup>2</sup>	R <sup>2</sup> Adjust	R <sup>2</sup> Changed
Achievement motivation	0.761	0.579	0.577	0.579
Educational level	0.772	0.597	0.592	0.018
Interest in agriculture	0.784	0.614	0.608	0.017



ucts. But it should be noticed that psychological factors like attribution style can have an important role in this process. Attribution style has motivational effects. Since motivation is the main force for energizing, directing and sustaining behavior, it should be in the center of attention in agricultural planning.

There were comparisons between HPWGs and LPWGs on some factors; the results show no significant differences between these groups in terms of age, farm quality, number of farm fragments and kind of wheat farms. In other words, members of both groups to some extent have a similar situation. So it shows that even though their physical conditions for farming are almost similar, their yield performance differ.

Locus of control and its dimensions (internal and external) can be recognized and manipulated by some personal characteristics. These characteristics are depicted in Figure 1. The figure shows that there is a positive and significant relationship between locus of control and wheat yield performance as shown with solid lines (the higher the score on internal locus of control, the higher the wheat yield performance).

On the other hand, there is significant association between internal locus of control with seven out of eight personal factors (all variables, except a tendency to migration).

Based on the findings, the following recommendations are presented:

1- Motivation-related personality characteristics e.g. achievement motivation, attribution style, and locus of control can be modified. Achievement motivation is a very important factor in explaining yield performance. So, it is suggested that the extension agents pay more attention to developing achievement motivation among farmers. By encouraging achievement motivation among farmers, they would enjoy working harder and more purposefully.

2- Farmers may break out of long-standing patterns of attribution to external factors if they find success in new situations. So attention must be paid to new situations (for example, using new technologies for cultivation, using scientific strategy for plant protection, and using advanced varieties). Once they show improvement, it may be possible to shift a person's locus of control from external to internal.

3- Changes can be achieved, directly by

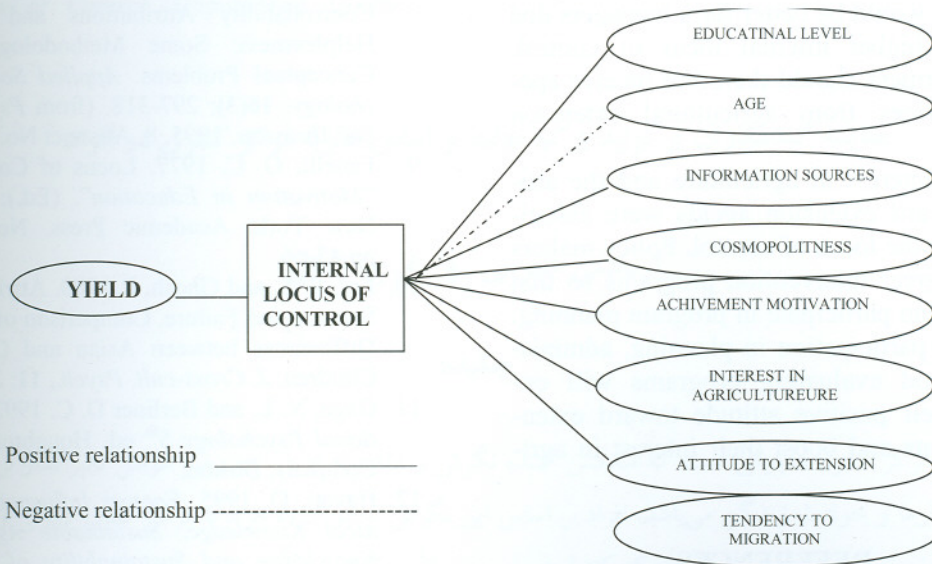


Figure 1. Locus of control model of wheat growers.



special programs designed for this purpose. For example, during the extension classes, the farmers can be taught to take personal responsibility for their actions, to choose realistic objectives and plan how to achieve those objectives. The purpose of attribution training programs is to change attribution strategies if their explanations lead to undesirable behavior.

4- Access to information sources is an important variable in yield performance, and in internal locus of control. So, it seems that planning for increasing the farmers' knowledge and enhancing their information is necessary. Therefore, it is suggested that more information facilities and educational programs be provided. These information sources can be: educational leaflets, radio and TV programs, extension classes, face-to-face contact with extension agents, field demonstrations etc.

5- Age of wheat growers was associated with their wheat yield performance, and their internal locus of control. Since young farmers' views and attitudes toward internal factors are positive, they can be used as contact farmers or can participate in rural councils.

6- Young farmers with a higher level of education and more contact with information channels would be better farm managers due to their higher internal locus of control. These farmers should therefore receive special services from agricultural extension agents.

7- An interest in agriculture and the attitude toward extension agents were associated with the locus of control. Policy makers should direct intervention programs so that farmers can participate in program planning. Farmers' participation in planning, administering, and evaluating programs will enhance their positive attitude toward extension agents and boost their interest in agriculture.

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