

# Role of Extension in Development Using Wastes of Rice in Animal Nourishing (Case –Study: North-of Iran)

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## **Abstract**

Nowadays, animal husbandry is possible via nourishing science. Nourishing science for domesticated animals is recognition of articles food and nourishing physiology , prepare of foods stuffs elementary value and the keeping and the methods of feeding. On the basis of estimates percent 70-75 generation expenses of animal rearing concerned to animals feed . T.D.N is not relief of bentry to animal rearing and on the other hand climate conditions of IRAN is not possible to development of farms for cultivation of provender. Indeed most of Iranian domesticate animals are ruminant and enable enjoy something from, later of product and accomplish in the best of state elementary needs. Rice productions can be original source of elementary needs. The rice is cultivated in the surface about 534000 hectors in Iran. More than 90% secondary products containing bran ,and straw are annihilated. Scientists research points out this value, elementary materials can diet for domesticated animals and also adds suitable technology is available could be by the name of technology but this technology is not authority for rearing of animal. Education measurement from rearing of animal and advancement experts and also special instruction for advancement experts and individual and global instruction inclined to instruction working places for rearing of animal, the budget guarantee and credits for securing needs of rearing of animal for above-named the recommendation fit for the occasion to technology transfer and extremity for decrease of production expenses and Economical for rearing of animal.

## **Introduction**

Agricultural extension is in crisis throughout the world. The concern driving the extension debate is increasingly one of what can be done to help farmers learn how to responsibly and profitably deal with the complex world around them such that who provides that help is ancillary. Livestock are the most valuable and important sources of food for human race. nowadays for rearing of livestock, we need to science of nourishing domesticated animals. this science is a composition of findings of various sciences that finally produce a relevant chemical mixture for nourishing of livestock that named Ration of Feeding. the purpose of Ration of Food is regulating a daily nutritious program for guarantying basic demands, maintenance and performance of domesticated animals and poultry in each day of year. Livestock that have multiple stomach-such as Ruminants or Cud Chewers- have a different ability in comparing to Livestock that have single stomach. These Ruminants or Cud Chewers can nourish from raw fiber in plants simple(by Bacteria and Micro-organisms that exists in their paunch and rumen). Plants are greatest producers of organic combinations in the world and also the main source of food in nourishing livestock. The main portion of raw fibers in crop plants are composing from straw, chaff, stubble, bran and etc. corns, among grains, Wheat and Rice not only have a unique situation in feeding human race, but also have specific importance in preparing Ration of Food for livestock. Until 2005, %95 of total global production of rice (*Oriza Sativa*)has been produced in Developing Countries(DCs).India and China are greatest producers of rice in the world. in Iran, after Wheat, rice is the most important source in preparing Calories for people. in 2003,Iran Produced about 3.5 millions ton Paddy(rough rice) and 0/5 percent of global production in 19<sup>th</sup> rank, between countries that produce rice in the world. In Iran per-head consumption of rice from 23 kg in 1966, raised to 40kg in 2006. Mazandaran,Guilan and Golestan Provinces in north-of-Iran (south-of-Caspian Sea) are the most important producers of rice in the Country(%82 of cultivated area and %84 of total production)( ADHIKARIA ,1996 BAHRAMI,, 2003).

Table 1-Average of productions by 100kg Paddy (rough rice) in Iran

Type of production	Kg
Safe and white rice	50-55
Half grain rice(semi-broken rice)	11-16
Complete broken rice	3-5
External bran	20-25
Internal bran	7-8

Table 2-Main sources for nourishing of Livestock in Guilan Province(in north-of-Iran)-2004

Type of nourishing source	Amount of Production(ton)
Clover, berseem ( <i>Trifolium alexandrinum</i> )	4300
Alfalfa ( <i>Medicago Sative</i> (dried))	10975
Corn, Forage (various species)	77309
Barely ( <i>Hordeum Vulgare</i> )	13920
Forages produced in Pastures	66600
Straw(chaff)of rice	534309
Bran of rice	160293
Straw(chaff)of Barely	20808
Refuse(wastes)-of- olive( <i>Olea europaea</i> )	5000
Refuse(wastes)-of-citrous fruits	20000

Table 3-Main Agricultural Productions in Guilan Province(in north-of-Iran)-2004(MOJA.2005).

Type of Agricultural Production	Cultivated surface(hectare/ha)
Rice	230000
Barely	6810
Olive	2732
Citrus fruits	7269

### Situation of Agriculture Sector in Iran

With an area of more than 1648 thousand sq. kms, Iran is situated in southwest Asia, and is considered as one of the Middle East countries. Iran is a mountainous country with a variety of climates. The average temperature and rainfall for the whole country are 18°C and 240 mm, respectively (CAPES,1996). The country is organized into 28 provinces. Over the past two decades, the rapid rate of population growth has been a major source of concern in Islamic Republic of Iran. The population of the country passed 60 million in 1993 and is projected to reach 86 million by the year 2010. According to the 1991 census, the female population of 15 years and above was 15 million. However, thanks to considerable investments and well organized and directed national population planning program, the population growth rate is now 1.5 percent in the urban and 2 percent in rural areas. At the national level, the figure is 1.65 percent (CAPES,1996). Agriculture is an important component of the Iranian economy, contributing 27 percent of GDP, 23.8 percent of employment opportunities, 82 percent of food supply and 35 percent of non-oil exports. It provides considerable portion of the raw materials for industrial use (CAPES, 1996). The principal cash crops are fresh and dried fruits. The main subsistence crops are wheat, barley, sugar beet and sugarcane. Mutton, lamb, fattening cattle and dairy cattle, poultry and fishery products are also important for domestic food supply (World Bank, 1994). Meanwhile, in food security terms, the Iranian government strongly supports agricultural development, increased food production, rural development and self-sufficiency in strategic food security. Thus, as far as the objectives of food production are concerned, the requirements are: access to land, better incentives to farmers, easy and affordable access to production inputs, improved knowledge and enhanced participation (CAPES, 1996). However, food security for the citizens is a constitutional principle to which the entire country is committed. In the constitution, strong emphasis is given to some of the key preconditions for national

food security such as agricultural development, science and technology, environment protection, social security, poverty alleviation, protection of women's rights and human dignity. Hence, agriculture and rural development are two pivotal issues in the national development programs in Iran (Shabanali Fami, 2000). Smallholders constitute the dominant section of rural people involved in agriculture. They are referred to, as "the family farm sector" comprising almost 50 percent of the rural population. Hence, this sector is central to concerns about poverty alleviation, production increase and food security. As noted by Pertev and King (2000) small-scale agricultural development is central to the elimination of poverty and hunger in developing countries. Contrary to the myth that agricultural extension is a tool to alleviate rural poverty, the findings of field research indicated that the extension organization was concentrating its efforts in villages where farms are larger, the village is more developed and which are nearer to the Rural Services Centers (Karami, 1995). This study also revealed that while the concepts of sustainable development go far enough to emphasize between-generation equity, the current extension efforts in Iran are increasing the inequity between villages. A nation wide study (Karami, 2000) indicated that the considerable percent of farming systems was unsustainable. Agricultural extension services by promoting conventional agricultural technologies are further reducing the sustainability of the farming systems. A path analysis of different factors with degradation of environment (Rezaei Moghaddam, 1998) indicated that in general, there is a negative relationship between poverty and sustainability. Furthermore, the study indicated that extension is neither contributing to poverty alleviation nor to sustainability of agriculture. Therefore, reorganization of extension system is an important priority in Iran (CAPES,1996. CLAYTON& RADCLIFFE.1996 .FAO.1997 GARFORTH,C.1997).

### ***Situation o National Extension System in Iran***

Many years ago, when agricultural sciences were introduced in Iran, the newly educated agricultural engineers tried to transmit their knowledge and skills to farmers who had learnt farming from their fathers and grandfathers. They thought this would be easy. These farmers, however, didn't allow new technologies to come into their farms. They believed that the power of their own hands was more than the words of young engineers with books. This new generation planned a better future for the farmers, in which machines would replace manpower and cow power, a world with more crops per drop. But an actual relationship between farmers and scientists did not exist until a group of agricultural engineers communicated with ethnic farmers in a relationship of equity and equality, by having them participate in creating special connections between different kinds of knowledge. This group was called agricultural extension engineers. However, initial work extension took place in 1949. At that time, the government contributed considerably to the formal establishment of public extension sector. Assistance was also provided by US government. Extension services in Iran have sought to develop competence of farmers so that they may have better control over their farming systems. The approach of extension system towards agricultural development is to help and empower farmers to discuss, recognize and define their needs and encourage them to involve in diverse programs to satisfy their needs. The extension system is in operation in all parts of the country encompassing about 52000 villages having 23 million people. It has five major levels of administration, i.e., national, provincial, township, district and Dehestan levels. The country envisions a broad-based and holistic extension system in content and scope. The prevailing approach is participatory extension, in which greater emphasis is given to working with farmers(Groups). During the past five decades, Ministries of Agriculture and Jihad (now Ministry of Jihad-e-Agriculture) were responsible to provide rural people with the extension services( SHABANALI FAMI, 2003 GOLMOHAMMADI,July 1998. GOLMOHAMMADI,. 2007).

### **Structural Adjustment and Evolution in the Extension System**

During the past six decades, the extension system in Iran has undergone some changes which are briefly pointed out. The Ministry of Agriculture in Iran was established in 1941 for various reasons; including policies adopted by central government caused it to experience many changes in terms of organizational structure and duties until the culmination of the Islamic Revolution in 1979. Since 1949, the Department of Extension (DOE) has been one of the main administrative sections of the Ministry of Agriculture. However, in 2001 DOE was integrated with the Ministry of Jihad. Shortly after the culmination of the Islamic Revolution, a new institution named Jihad-e-Sazandegi (Construction Jihad) came into existence. It was specifically established for rural and agricultural development purpose. In 1991 Jihad-e-Sazandegi received the position of ministerial level and as a result, it was entrusted some of the duties of the Ministry of Agriculture, including those related to livestock management, fisheries, aquaculture, and natural resources management. After years of continuous efforts and impressive achievements, finally upon the approval of the Islamic Consultative Assembly, the new Ministry of Jihad-e- Keshavarzi (Jihad-e-

Agriculture) was established by merger of both the Ministries (Ministry of Jihad-e-Sazandegi & Ministry of Agriculture) in 2001.

### **Extension Centers (ECs)**

During the past three decades, various extension centers have been established in rural areas. Educating rural people, supporting agricultural development programs and delivering necessary services to the farming communities are the main functions of these centers. However, some of them have been more involved in the distribution of basic agricultural inputs than with the provision of extension services. Extension Centers are known with different names:

### **Rural Services Centers (RSCs)**

RSCs initiated their activities in 1980, under the management of Ministry of Agriculture. They were established at the district level to provide farmers with the technical, financial, educational and infrastructure services such as seeds and fertilizers distribution tasks. Each RSC consists of different units like water and soil, poultry and livestock, agronomy, mechanization and extension education unit. An average 48 villages are covered by one RSC. They have suitable access to infrastructure facilities such as potable water, electricity, and telephone but do not have appropriate access to teaching aids.

### **Educational Complexes (EDCs)**

The first EDC was established in 1998 under the management of Ministry of Jihad. The main goal of EDCs is to educate rural people working in different economic sections particularly in agriculture. EDCs are mostly located at the provincial level. About 82 per cent of EDCs have boarding and lodging facilities.

### **Extension Homes (EHs)**

EHs were first established under the management of Ministry of Jihad in 1990 at Dehestan level. Each EH covers about 22 villages. Since the outset of extension activities in the country, EHs have been the first extension centers that have merely focused their attentions on extension activities. The main goal of EHs is to improve managerial, technical and marketing abilities of farmers and enhance their income and standards of living. Local people and extension workers are under the supreme control of the government run EHs. Each EH has two educational sections: library and information database unit. About 70 per cent of EHs cover 1-2 rural libraries.

### **Rural Libraries (RLs)**

The first RL was established in 1946 with the principal goal of developing human resources in rural areas. In this regard, with the membership of rural boys and girls, RLs also render extension services now. Each RL covers 19 villages (about 341 households). The average literacy level of rural people in the areas covered by RLs' services is about 73 per cent. The average working hours of RLs is also about 4 hours per day( SHABANALI FAMI., 2003 GOLMOHAMMADI,, July 1998. GOLMOHAMMADI., 2007).

### **Extension-Education Centers (EECs)**

The first EEC was set up in 1971 by the help of the National Committee for Literacy Campaign. On the average each EEC serves 76 villages.

## ***Sustainable Development and Sustainable Agriculture***

Sustainable Development can be defined as providing for a continuing improvement of the quality of life while maintaining for natural resources for future generations. Agriculture is the key to sustainable development because ultimately quality of life must hinge on a well-fed healthy population and high-quality natural resources including water, soil, and air. And also ,of all human activities, it is perhaps agriculture that alter global environment to the greatest extent.(Sands&Podmore.2000.P:29). There are some common elements in comprehensive term of sustainable agriculture, such as: management and utilization of the agricultural ecosystem in a way that maintains its biological diversity, productivity, regeneration capacity, vitality and ability to function, so that it can fulfill-today and in the future-significant ecological, economic, and social functions at the local, national, and global levels, and does not harm other ecosystems (Rodrigues.et.al.2003.P:220, SINGH.et.al. 1994.RODRIGUES.G.S., et al.2003. PRETTY, 1995. KEENEY., N.D). Using of Wastes of Rice in Animal Nourishing is one the main necessary methods in achieving the goals of sustainable agriculture. Because of decreasing in environmental polluter wastes, increasing in food production and food security, and finally decrease pressure in natural resources for meeting human needs.

## ***Using of Wastes of Rice in Animal Nourishing***

In basis of scientific economic researches, about %70 costs of livestock breeding in Iran, belongs to the preparing of food for nourishing Animals. Raw fibers in rice have a major role in making guardianship

and firmness textures that contain %50 of organic matters in this plant. this raw fibers compose the major portions of Straw, Chaff, Stubble, Bran and etc. Unfortunately, about %90 of these materials, in Guilan Province don't use in livestock breeding. the main problem in using these materials, is the un-awareness of rural people in important role of wastes of rice in nourishing animals specially livestock that have multiple stomachs-such as ruminants or cud chewers-that have a huge ability in using them. nowadays ,using of these wastes of rice in animal nourishing in developed countries by enriching them in scientific research works have a major role in expanding use of Wastes of Rice between farmers and animal husbandmen.

### ***Some methods in Using of Wastes of Rice in Animal Nourishing***

Scientific and applicable research works in Iran and abroad, has proved huge positive effects of different and various stages of applications in enrichment of bran, straw and stubble, and role of them in supplying and meeting portion of livestock nutritive needs. In below, we present abstract of some important methods in this way:

- 1- Using straw with molasses and chemical fertilizer of urea (a composition of 100kg straw, 15kg molasses and 2kg chemical fertilizer of urea. This composition can substitute %20 of nutritive ration of indigenous and commercial (low to medium level of production) races of livestock. This nutritive ration, also can use alone for nourishing livestock, when not available another food in the region.
- 2- Using bran, straw and chemical fertilizer of urea (a composition of 100kg bran and straw, 50kg water and 5 kg chemical fertilizer of urea). this combination after placing in plastic cover under sunshine, can use for livestock nourishing.
- 3- Consumption silo (store-pit) of straw, chemical fertilizer of urea and refuse of citrus fruits. This silo composition is very delicious for livestock and we can use this nutritive matter 25-30kg /day in nutrition of fattened livestock.
- 4- Using of hot water steam for injuring of cellulose parapets in straw and increasing digestive capacity of it.
- 5- Preparing various synthetic silos(store-pit) with straw(straw as main matter with wet or dried forage, chemical fertilizer of urea, molasses, refuse of beet, and etc. have been stored).high quality silo matters-old- can use as much as 30kg/day ,and medium quality silo matters-new-can use as much as 20kg/day for nourishing livestock.
- 6- Increasing high PH chemicals-alkali or base- such as chemical fertilizer of urea, soda (Sodium / Natrona) and etc. to bran(2-4 % with heat and pressure.6-8% soda, without pressure can increase digestive capacity of bran as much as %65).
- 7- Grinding bran that causes increasing surface of contact of grinded bran with micro-organisms and bacteria that have a directive and undeviating effect in increasing digestive capacity of bran.
- 8- Grinding and composing bran with other digestive matters in ration.

(about %20 of paddy is composed from bran, that at present, main utilization of it in Guilan province is for preparing dried bed for livestock and poultry ,and surplus to demands, either burn or litter).

Remainder of stems and leaves of rice in fields after harvesting. in Guilan province main method in harvesting of rice fields is traditionally and by hands of farmers. This way causes increasing in damages of harvesting in this crop. in time of rice harvesting that has be done with a local instrument named Darreh(similar to scythe with a long wood lever),about1/3 of stem, remaining in the field, that after harvesting can again growth and produce grain(in climatic conditions of Guilan province) that can meet a portion of human nutrition needs. In Guilan province after harvesting, farmers grazing livestock in fields and they can feeding from these remaining stems and leaves of rice in fields. Also we can use these by condensing them and/or using of them in silos(store-pit). At present, main of them in Guilan province, decay and go under soil by winter plough (ROGERS, & SHOMEICKER. 2000 .PETERSON,,1997. GOLMOHAMMADI., 2007) .

## **Major Challenges for Agricultural Extension System in Iran**

- a) To equip extension centers with necessary facilities such as phone line and computer;
- b) To improve the gender ratio of extension workers within the system;
- c) To educate rural girls as a part of future farmers of Iran;
- d) To establish a reliable database emphasizing the gathering of gender desegregated data;
- e) To train extension workers on facilitation skills and PRA methods;
- f) To clarify the goals and responsibilities of public extension sector as compared with private extension Sector; and
- g) To develop the management capabilities of extension system, to regulate, monitor and facilitate private Sector activities(SHABANALI FAMI, 2003. GOLMOHAMMADI, July 1998.GOLMOHAMMADI, 2007).

## **Prevailing Policies of Extension System in Iran**

- Delegation of public extension to private sector;
- Absorbing rural extension workers who are local volunteers;
- Improving the access of agricultural producers to the recent research findings;
- Channeling indigenous knowledge and capacities into extension activities; and
- Enhancing institutional diversification or pluralism of extension service providers.

## ***Providing extension educations for farmers, a fundamental approach in using of Wastes of Rice in Animal Nourishing***

Maunder (1979) one of the members of food and Agricultural Organization of United Nations (FAO) has defined Agricultural Extension such as : « A Type of Non Formal and out of school Education is that for Education and Affect on farmers (and their families) and imply in purpose of adaptation improved methods to produce Agricultural and livestock Production , Management, Conservation and Marketing ». the noteworthy is that it not summarize in Education and confidence from adaptation improved method, but in change of view scope of farmer until he/she continuously and with his/her take the lead , willing devices and tools to improve her/his Agricultural and housing Activities. Mr. Edgar J. Boone assistant director in Extension Organization in North Carollina state, has distinguished following Goals for Educational Profession of Extension (as quoted in: GOLMOHAMMADI, 2007):

1- Instruction of people in their Environmental Condition until they can recognize and assessment their problems and needs,

2- help the people to access necessary skills to Confronting with their problems and needs; and

3- Convincing them in purpose of implementing appropriate affairs. Extension is affected from external factors of agricultural sector such as education, transportation, irrigation and development policies, design and transfer of program. Also is affected from internal factors of agricultural sector such as credit, inputs, research and marketing. In whole, we must pay attention to this important point that Extension must be executed in the total of Agricultural Development Process (Blackburn, D. 2001). Education, research and extension are three principal and important elements in agricultural development that must make a complete communication and interaction between them. The result of research in agriculture, determine extension endeavors that via extension workers, we can disseminate research findings between farmers and all people that work in agricultural sector. On the other hand said that in the basis philosophy of extension, problems and difficulties of villagers via this popular institute must be transmitted to researchers and in any case this mutual way between people (via Extension Workers) and researcher take place. Of course, in planning and implementing extension education endeavors, awareness from diffusion and acceptance process has a special situation for success. For this mean, in preparing these programs, we must prepare directive involvement of Extension Workers, farmers, experts and researchers in such manner that establish a realistic and true proportion between possibilities, environmental conditions and society needs. To refer with this true that appropriate technology for using of wastes of rice in animal nourishing is available in this field, and complete scientific research works had been done before, with presenting scientific and applicable alternatives and approaches, required appropriate technology in this field is not very expensive and accessible and transmittable to rural regions, comfortably. In this final stage, we need extension education endeavors with respect to this reality that in these programs, goals and objectives determine to have in mind result, therefore before doing any work in presentation extension education affairs for farmers, we must prepare appropriate goals and objectives for our educational programs. These must be coordinated with learning principles (motivation, readiness, continuity and sustainability of learning, value of transmitted learning and etc.) and implementing them in a wide range cause creation new economical and social

opportunities. in this research, main goal is accessing to maximum production (livestock breeding operation and revenue) with using of wastes of rice in animal nourishing, and special and functional goal/objective is preparing appropriate and economical feeding ration for livestock breeding by using wastes of rice in animal nourishing. For achieving above goals and objectives, with respect to available and potential possibilities, we must do following affairs in order:

- 1- Presenting public education with using of mass-media (these educations involve public awareness and knowledge, preparing introductory and educational pamphlets in regarding to economical and nutritive value and importance in using and enrichment of wastes of rice in animal nourishing).
- 2- Presenting group/individual in domain of how-to knowledge in usage of secondary productions of rice in livestock feeding with regard to scientific research findings.
- 3- Development functional joining groups with attendance and participation of specialists and experts in agricultural research and extension education centers for preparing most appropriate technology in field of bran, straw and stubble collection, storage, making silo, and etc.
- 4- Presenting the best and cheapest method for enriching bran, straw and stubble, with regarding to available technical and technical possibilities in the region.
- 5- Establishing possibilities to introducing farmers for using of required financial and credit facilities for purchasing technology in this domain (such as various machines for harvesting, storage, establishing silo, maintaining warehouses and etc.).
- 6- Establishing and development necessary incentive policies for breeding and fattening of cow, sheep and etc.
- 7- Usage of educational methods, that most important types of them, include  
 7-1-presenting demonstrative methods(in this way, after presenting scientific basic theories and principles about enrichment of bran, straw and stubble, functional implementing of them ,with respect to available possibilities-in individual or group forms- have been done).  
 7-2-presenting result methods(in this way, after presenting scientific basic theories and principles about enrichment, appropriate and pre-planned visits from research or livestock breeding centers that use from above techniques, have been prepared).  
 7-3-establishing workshops(this way, is an appropriate method for implementing special educational courses in agriculture. these workshops have been established in a limited time period -2 \_4 days- for improving or teaching special skill for limited numbers of learners-5\_7 persons-.instructors in these workshops are experienced Subject Matters Specialists (SMS),Experts and Faculty members that have special skill in education and leadership of learning process (GOLMOHAMMADI,. 2007 .CLAYTON& RADCLIFFE.1996 .FAO.1997 GARFORTH,C.1997) .

## **Materials and Methods**

In this research, that had been done in Guilan Province(in North-of-Iran) during 2003-2004, total size of farmers in research was 5000 and farmers in sampling size of research was 300.sampling method in this research was clustering. type of research was Descriptive-Analytical–Applicable research. The main instrument of the research was special questionnaires for farmers, also, researchers used data collection methods in qualitative paradigm method in research such as documentation, photographs, discussions , participation and etc.

## **Findings of The Research**

-%84 of the farmers said that Using of Wastes of Rice in Animal Nourishing is a key solution for increasing food security and accessing to sustainable agriculture goals and criteria.

-%76 of the farmers said that there are sufficient infrastructure and possibilities in the region for Using of Wastes of Rice in Animal Nourishing.

-%86 of the farmers said that there are not available financial and credit facilities for Using of Wastes of Rice in Animal Nourishing in the region.

-%78 of the farmers said role of extension education programs in development Using of Wastes of Rice in Animal Nourishing in the region are very effective.

-%54 of the farmers in this research ,have multiple cropping and %56 of them breeding livestock (in subsistence form ,majority) near their homes and farms.

\_%73 of the farmers said rural development affairs since 20 years ago, have been very successful in agricultural development and increasing well-being in rural households.

below Correlation matrix between knowledge and adoption behavior(Final Goal in Agricultural Extension Education) with fourteen socio-economic variables of respondents was been recognized:

### ***Conclusions and Recommendations***

It is obvious that agriculture requires a more flexible system of delivering information and technological innovations. If extension system intends to play a decisive role in agricultural development, it should be restructured and become pluralistic in nature. However, taking the socio-economic changes into consideration, the following recommendations are proposed to enhance the extension system in Iran:

- New concepts like cyber extension should dominate the extension scenario in the future;
- Proper information management system and database should be developed for each farming system in the country;
- In order to improve the efficiency of extension services, continuous training of extension agents and evaluation of the impact of training should receive a high priority;
- Community-based organizations and SHGs should be more popularized in different parts of the country and play significant role in agriculture;
- Institutional pluralism in extension should be more focused to cope with the chronic problems of public extension system;
- More emphasis should be placed on participatory approaches to agricultural extension and development;
- HRD should be given due importance in different sections of extension system;
- A decision support system to support farmers in the process of decision-making should be developed; and
- Along with public extension system, due importance should be given to the specialized and privatized extension system.

In adaptation process of this new technology in Guilan Province these problems have a major role in un-adaptation of Wastes of Rice in nourishing animals:1)Traditional Structure in animal husbandry in region.2)Un-awareness of farmers in new knowledge and available potentials in province.3)Un-sufficiency in extension workers in animal husbandry in region.4)Traditional Structure in different stages in rice farming(Un-Mechanization) in province.5)Un-availability a powerful structure in Extension, Research and Education Management Organizations in province.6)Un-availability Conversion industries in region.7)Shortage in Financial Facilities in province.

With respect to findings of this Research, we can recommend following points for achieving success in Using of Wastes of Rice in Animal Nourishing Agricultural extension Organization in Guilan province :

- 1- Extension must execute such communicative and informing processes that messages in first step receive to poor categories of Rural people and their contents also have accomodation with their real needs.
- 2- Extension must be establish effective system and powerful linkages with Public Research Institutes , Suppliers of Agricultural inputs and outputs and various markets in Agricultural Factors and productions.
- 3- in addition to deliver new and profitable Technologies, Extension must be aimed in establishing positive changes in the total dimensions of farmers' behaviors (Knowledge, Attitudes , Skills and Aspirations or KASA ) and strengthening Appropriate Decision\_Making Capability in them.
- 4- Extension must consider long-term goals of sustainable Development with emphasizing on establishing more effective agricultural production systems with more productivity and with lower external inputs, increasing intervening and participation of farmers in developing program, recognizing, comprehension and application indigenous knowledge in agriculture production systems and advanced management in Base-Natural Resources.
- 5- Extension must establish policies that provide necessary Economical motivations for farmers toward adaptation more sustainable production systems.
- 6- farmer to farmer extension, influencing in individual and group behaviors, covering and appropriateness the content of mass media for Rural audiences- special Radio and Television, presentation appropriate alternatives and strategies in problem – solving , compatibility of Technologies and correct implication of sustainability approaches in connect to Technical context in Extension materials , must be considered .

7- in various ways such as directing to problem solving , participatory planning Approach, intensive and powerful Training of Extension workers, Development Multi – Media materials , Extension management and Appropriate methods for Monitoring and Evaluation and Application bottom-up Approaches in Extension, and etc., we can increase efficiency and effectiveness of Extension services in Iran significantly.

8- Strengthening Co-operations in agricultural sector ,to empowering peasantry and subsistence farmers ,especially in competitive conditions in global – trade environment of agricultural products.

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Table 4- Correlation matrix between knowledge and adoption behavior with fourteen socio-economic variables of respondents

	Age	Education	Family size	Family type	Land holding	Social participation	Utilization of information source	Utilization of mass media exposure	Annual income	Extension contact	Economic motivation	Marketing support	Socio-economic status	Knowledge	Adoption
Age	1.000														
Education	-0.458*	1.000													
Family size	-0.220	-0.070	1.000												
Family type	-0.125	-0.060	0.618*	1.000											
Land holding	-0.015	-0.172	0.39	-0.020	1.000										
Social participation	-0.423*	0.837*	0.000	0.036	-0.162	1.000									
Occupation	0.079	-0.012	0.290*	0.250	-0.099	0.148	1.000								
Utilization of information source	-0.288*	0.817*	-0.130	-0.018	-0.078	0.732*	0.059	1.000							
Mass media exposure	-0.470*	0.906*	-0.155	-0.131	-0.118	0.864*	-0.002	0.781*	1.000						
Annual income	0.080	0.347*	-0.413*	-0.474*	-0.143	0.281*	-0.322**	0.244	0.347*	1.000					
Extension contact	-0.407*	0.903*	-0.085	-0.026	-0.140	0.862*	0.087	0.763*	0.917*	0.292*	1.000				
Economic motivation	-0.457*	0.870*	-0.207	-0.171	-0.161	0.821*	-0.070	0.744*	0.919*	0.481*	0.868*	1.000			
Marketing support	-0.380*	0.806*	-0.217	-0.167	-0.106	0.754*	-0.078	0.685*	0.840*	0.493*	0.773*	0.901*	1.000		
Socio-economic status	0.092	0.033	-0.210	-0.193	0.098	-0.055	-0.428*	-0.067	0.006	0.387*	-0.083	0.057	0.103	1.000	
Knowledge	-0.450*	0.916*	-0.113	-0.076	-0.123	0.878*	-0.019	0.767*	0.944*	0.333*	0.935*	0.908*	0.823*	0.017*	1.0000
Adoption behavior	-0.447*	0.904*	-0.127	-0.093	-0.113	0.858*	-0.004	0.766*	0.939*	0.352*	0.917*	0.903*	0.827*	0.012*	1.000

No. of cases 100

\* Significant at 1 per cent 0.01 level of probability