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Relationship Between Technical Competency and Extensionists'job Performance

Neda Tiraieyari, Khairuddin Idris, Azimi Hamzah and Jegak Uli

Department of Professional Development and Continuing Education, faculty of Educational Studies, University Putra Malaysia

Abstract: This study was to determine the relationship between technical competency and extensionists' job performance in relation to Good Agricultural Practice (GAP) among Malaysian extensionists at Department of Agriculture (DOA). The study employed stratified random sampling technique. Samples are chosen with a technique called proportional sample allocation. The sample consisted of 210 extensionists from Department of Agriculture in four states of Malaysia. The data were analyzed using descriptive statistics and Pearson correlation analysis. The findings support the positive relationship between technical competency and job performance. Finding would help policy makers and extension managers to focus on development of competent extensionists as the whole extension process is depend on extensionists to transfer GAP to the clients. Competency identified in this study could be incorporated into in-service training as well.

Key words: Technical competency, extensionists' Job Performance, Good Agricultural Practice (GAP)

INTRODUCTION

Agriculture has played a key role in the development of Malaysia, resulting in the country becoming the world's leading palm oil producer and the third largest producer of natural rubber. The government's policy towards agriculture focuses on increasing production, in order to achieve food self-sufficiency and to develop exports[6].

The Malaysian agricultural sector is characterized by dualism in its production systems which are the estate sub sector and smallholding sub sector. The estate sub sector is highly commercialized but smallholding sub sector making up less commercialized. The average size of a small farm holding is about 1.45 hectares. However, because of the large number of small farm holdings, the hectares of land operated by them are larger than that of the estate sub sector. At present there are more than 1 million small holders cultivating about 75% of land area under agriculture[14].

The bottom line in agricultural trade is that manufacturers are demanding agricultural products that are produced in a safe and sustainable way and with assurance that they are conforming to standards of Good Agriculture Practice (GAP). Towards this objective, attention has been given on sustainable agricultural productions and Malaysian government is trying to encourage production in the food sector for export and to develop market for agricultural produce in order to balance the trade in agriculture[15].

Since cost of production of smallholders is high, with low input, low yield and poor quality produce, the government launched several good agricultural practice (GAP) schemes in order to improve the quality of produce. These smallholders are the target for the GAP schemes[14] and the mission statement of the Department of Agriculture in Malaysia currently includes provision of consultancy services to them[8].

Good Agricultural Practices (GAP) in Malaysia: Good Agricultural Practice is an integrated system to manage the hazards associated with the elements of land, input, processes and output of agricultural production to achieve productivity, sustainability, quality and safe produce. Malaysia has embarked on the program to ensure that the agricultural production meets the guidelines of sustainable agriculture; a certification scheme audited to GAP standard was introduced and implemented in the country.

The first GAP scheme for food crops introduced in Malaysia was the Malaysian Farm Certification Scheme for Good Agricultural Practice (Skim Amalan Ladang Baik Malaysia) with the acronym SALM. The scheme was developed by the Department of Agriculture of the Ministry of Agriculture and Agro- based Industry, modeled after EUREP GAP and later was modified to suit the needs of the local and international markets. It was launched in the year 2002[15].

Corresponding Author: Neda Tiraieyari, Department of Professional Development and Continuing Education, faculty of Educational Studies, University Putra Malaysia
Email: ntiraie@yahoo.com

SALM is a national program implemented to recognize and certify farms which adopt Good Agricultural Practices (GAP), considering products that are of quality, safe and suitable for consumption. The SALM certification scheme comprises 16 components, whereby each component is made up of rules and specific conditions[15].

To do extension job, extensionists have to be competent in different aspects of the job. One aspect of this is the farming based technical knowledge required for the job. This is usually done during the extensionists' professional training. Extensionists provide information to assist clients in making decisions. The technical advice probably applies more directly to the production activities of the clients and to the action needed to improve or sustain this production. Boyd[2] stated that successful extensionists should have strong technical knowledge. Similarly Belay and Abebaw[3] contended that higher rates of technology adoption by clients are achieved when extensionists possess adequate technical knowledge. In the case of rubber smallholding in peninsular Malaysia, Rahim M.Sail *et al*.[16] identified several factors for the low level of technology adoption among Malaysian smallholders. One of the reasons was lack of extensionists' knowledge and skills on current rubber technology.

Extensionists must be competent in areas of technology and have to access to the knowledge bases necessary to maintain their competencies. Today, extensionists are faced with many knowledge bases of new technologies being developed both at home and abroad. These new knowledge must be transferred through educational programs to the clients systematically. In developing countries plenty old agricultural technology packages are not known, accepted and properly practiced by clients.

Good agricultural practice is a new technology in Malaysian agricultural sector and important to solve food crisis. Transfer of GAP by competent extensionists is important to ensure high productivity in Malaysia. This research was to investigate extensionists' job performance and its relationship to the technical competency at the Department of Agriculture in Malaysia. The Department of Agriculture has earmarked Malaysian Farm Certification Scheme for Good Agricultural Practice (SALM) as new technology that should be transferred by extensionists to the clients. Hence this study seeks to extend the literature on competency –performance relationship in agricultural extension and education. In relation to this, the present study will address to provide answer to is there any relationship between technical competency and extensionists'job performance?

The objectives of the study are:

1. The level of competency of extensionists on SALM program to determine the lavel of extensionists' competency on SALM program.
2. The relationships between competency on SALM program and extensionists'job performance to determin the relationship between competency onSALM program and extensionists' job performance

MATERIALS AND METHODS

Research design: The present study is a descriptive correlation. Descriptive correlation research combines descriptive and correlational studies. In this study job performance is dependent variable and competency on SALM program is independent variable which may have relationship and determine job performance.

Sample: The target population of this study consists all front line extensionists at Department of Agriculture (DOA) who deals directly with the clients. There are a total of 651 extensionists within West Malaysia. The population for this study is all front line extensionists (N=651). It was decided a sample size of 210 as a sample size for this study.

Sampling Method and Procedure: This study employs a geographical stratified sampling method. West Malaysia is divided into four regions: Northern region, Central region, Eastern region and Southern region[13]. First one state was randomly selected from each region. The states were selected are Perak in the northern region (131 extensionists), Negeri Sembilan in the central region (41 extensionists), Kelantan in the eastern region (67 extensionists) and Johor in the southern region (81 extensionists). The total number of extensionists in these four states (stratum) is 320.

Then, samples were chosen with a technique called proportional sample allocation. The size of the sample in each state (stratum) is taken in proportion to the size of the stratum. The samples were as follows:

Number of sample in Perak (northern region) = (131 / 320) 210 = 86

Number of sample in Negeri Sembilan (central region) = (41 / 320) 210= 27

Number of sample in Kelantan (eastern region) = (67 / 320) 210= 44

Number of sample in Johor (southern region) = (81/ 320)210 = 53

From each state, respondents were picked at random from the complete list names of respondents. The list of extensionists in each states was obtained from department of agriculture. A total of 210 extensionists were randomly selected.

Instrument and Measurement: This study utilizes questionnaire as the instrument to collect data from the respondents. A questionnaire was created, which consisted of three sections. First part of the questionnaire is designed to collect data and measure competency of extensionists on SALM program. The second part of questionnaire is to measure extensionists' job performance. The last part of questionnaire is socio demographic characteristics of the respondents.

Competency on SALM program was measured by the extent of extensionists' knowledge on the roles of Malaysian Farm Certification Scheme for Good Agricultural Practice (SALM). Due to the several rules and conditions of SALM program which need to learn and practice by clients, this study chose to focus on critical aspects of SALM. Hence thirteen items selected randomly from critical aspects of SALM to measure technical competency of extensionists on the roles of SALM.

Extensionists' job performance (the dependent variable) is defined as activities performed in a given position as extensionists carry out the responsibilities and duties of the position. Particularly those activities that are concerned with the fulfillment of the expectations associated with that position. Job performance has been conceptualized as performance of specific dimensions. In this study, extensionists' job performance, the dependent variable was measured using the different function of their job. Respondents were asked to assess their performance on eleven dimensions namely.

1. Quantity of Work,
2. Quality of work,
3. Deliver of time /Timeliness,
4. Effectiveness of work.
5. Knowledge and skill in work,
6. Implementation of Policy/ Procedures and direction.
7. Effectiveness of communication,
8. Ability to manage,
9. Discipline, Pro-active,
10. innovative,
11. Relationship and co-operation.

The instrument contained eleven dimensions of job performance and totally 46 items that extensionists are supposed to perform in their current position. Job performance rated through self rating system. The section on job performance required to assess from the respondents on their own performance. The use of self as a performance information source is an established practice even though self appraisals of performance tend to be more lenient than supervisors appraisal[10]. However Farh and Werbel[7] found that in performance evaluation, self rating was highly equal with supervisory rating. Self ratings were found to be as stringent as supervisory rating for all performance dimensions and in the areas of job performance assessment. A 10 –point likert-like scale was used to measure the constructs (1= strongly disagree to 10 = strongly agree).

Validity and Reliability of the Instrument: As a first step toward validating the instrument, the items were reviewed by panel of experts comprising various faculty members. They were consulted on face validity and content validity on each part of the questionnaire.The instrument was piloted with 20 extensionsits. A reliability analysis using Coronbach's Alpha was also performed for each scale. The results for Reliability Statistics in pilot test (n= 20) for SALM competency were .787 and in actual study (n= 210) was .873 and for job performance the results for Reliability Statistics in pilot test (n= 20) was .960 and in actual study were.973.

Data Collection Procedures: The researcher employed a drop and pick method to ascertain a higher response rate compare to mailed questionnaire. In order to collect data, first the list names of extensionists in four states were obtained from the DOA. From the list, the required numbers of extensionists from each state was selected randomly. Those identified names with the attachment of approval letter of the study from DOA and research schedule were faxed to the state DOA in all four states. To administer the questionnaire the researcher traveled to those states in due time. The researcher met with the state extension director in department of agriculture and the contact person to explain about the research proposes and procedures in filling the questionnaire. The final version of the questionnaire was distributed to the respondents. Generally extensionists responded quicky and researcher collected the completed questionnaires personally from each state.

RESULTS AND DISCUSSIONS

The demographic profile of the respondents is depicted in table 1.

Gender: Majority of extensionists were males (76.2%) and (23.8%) of them were females among all respondents.

Age Group: Most of the respondents were distributed in the age group of 45- 54 years (40.5%) compared to (29.5%) for the age group of 25-34 years and (16.2%) for 35 – 44years. About (8.6%) were below 25 years

old and (5.2 %) Above 55 years. The average age is 39.67 years (SD=10.55) with the youngest 20 and the oldest 58 years.

Ethnic: The ethnic components comprised (91.9 %) Malays, (8.1%) Indians and none Chinese.

Level of Education: As noted in table 2 a majority of respondents had Certificate of agriculture (65.7%), while (21%) of extensionists had SPM, (9%) Diploma and (4.3 %) Bachelor degree.

Tenure in Extension Services: The data also shows that (43.3%) of the respondents had above 17 years extension tenure. Some (27.6%) between 5 - 10 years, (21.4%) below 5 years and (7.6%) between 11-16 years. The average years of working as extensionists is 15.2 years (SD=10.88) with the minimum of 1 year and maximum of 37 years.

The first objective of this study was to determine the level of the extensionists competency on SALM program. Extensionists have rated very high in explaining their SALM program competency. Extensionists who felt that their level of this competency is very high (69%), high (27.7 %) and moderate (3.3%). Base on the ten –point scale used, the minimum rating for this competency was 5.00 and a maximum of 10.00 and this gives a range of 5.00 the median rating value was 8.24 with a standard deviation of 1.02 the mean rating was 8.24 .

The second objective of this study was to determine relationships between SALM competency (independent variables) and extensionists' job performance (dependent variable). The Pearson correlation coefficient was employed to achieve this objective. Results showed job performance is positively related to SALM program competency (r= .356, p= .001), according to Cohen[5] range for interpreting the correlation coefficients. There is also a medium relation between competency of extensionist on SALM program and job performance.

Review of the findings of this study resulted in a number of conclusion:

Extensionists in DOA are competent in SALM program.

Extensionists in DOA perform the extension job well in transferring the SALM program to the clients. In other words, extensionists performed the extension activities well as they carried out the responsibilities and duties of transferring the SALM program.

According to correlation analysis SALM competency was found to have correlated with extensionists' job performance. Hence Extensionists' job performance is expected to increase if extensionists have technical competency.

Table 1: Demographic Profile of the Respondents (n=210)

Demographic variable		Frequency	Percent	mean	SD
Gender	Male	160	76.2		
	Female	50	23.8		
Age group	Below 25 years	18	8.6	39.67	10.55
	25-34 years	62	29.5		
	35-44 years	34	16.2		
	45-54 years	85	40.5		
	Above 55 years	11	5.2		
Ethnic	Malay	193	91.9		
	Chinese	0	0		
	Indian	17	8.1		
Level of education	SPM	44	21.0		
	Certificate of agriculture	138	65.7		
	Diploma	19	9.0		
	Bachelor degree	9	4.3		
Tenure in extension services	Below 5 years	45	21.4		
	5-10years	58	27.6	15.2	10.88
	11-12tears	16	7.6		
	Above 17years	91	43.4		

Table 2: Level of independents variable and dependent variable (n=210)

	Variables	
Descriptive Statistics	Y	X
Mean	7.36	8.24
Median	7.47	8.53
Standard Deviation	0.93	1.02
Minimum	4.37	5.00
Maximum	10.00	10.00
Range	5.63	5.00
Interquartile Range (IQR)	1.36	1.39
Skewness	-.262	.83
Level		
Low (4 & less)	0 [a] (0) [b]	0 (0)
Moderate (4.1-6.9)	14 (6.7)	7 (3.3)
High (7.0-8.9)	137 (65.2)	58 (27.7)
Very high (9 & above)	59 (28.1)	145 (69.0)

Note: [a] = Frequency/count, [b] = percent, Y: Job performance X: Social competency

This study showed a relationship between technical competency and extensionists' job performance in relation to Good Agricultural Practice in Malaysia. Focused attention on the technical competency must be paid in order to keep extensionists competent and to improving overall extensionists' job performance.

Definition of Terms:

Extensionist: Extensionist is an agricultural extension worker, a change agent, a professional serving as link between government and people. He or she intervenes to bring about change in order to help improve the live of clients[5].

Clients: The term client used for farm producer

Competency: Competency is defined as knowledge, skills, or abilities required of the job Cooper and Graham[4].

Questionnaire:

Part A: Competency of extensionists on SALM program

		Strongly disagree									Strongly agree
1	The produce shall be traceable to the farm where it has been originally produced.	1	2	3	4	5	6	7	8	9	10
2	Internal audit shall be carried out at least once a year and documented	1	2	3	4	5	6	7	8	9	10
3	Where protected varieties are used, the farm shall respect intellectual property right legislation on plant variety protection.	1	2	3	4	5	6	7	8	9	10
4	A recording system shall be established for the site history and the layout of fields of their crop history.	1	2	3	4	5	6	7	8	9	10
5	Where chemicals are used to sterilize substrates for re-use, records shall be kept and shall contain location of sterilized substrate	1	2	3	4	5	6	7	8	9	10
6	The use of untreated and treated human sewage sludge and pig waste is prohibited.	1	2	3	4	5	6	7	8	9	10
7	Untreated sewage water is prohibited for use	1	2	3	4	5	6	7	8	9	10
8	The crop protection product utilized shall be appropriate for the control required	1	2	3	4	5	6	7	8	9	10
9	For crop to be exported, crop producers shall not use chemical that are banded or disallowed in importing countries.	1	2	3	4	5	6	7	8	9	10
10	Portable water shall be used for washing of products	1	2	3	4	5	6	7	8	9	10
11	Crop producers and / or suppliers shall provide evidence of residue testing	1	2	3	4	5	6	7	8	9	10
12	All permanent product packaging and storage sites shall have adequate pest control measures, particularly in areas of food handling, storage of packaging, storage of pesticides and storage of fertilizers.	1	2	3	4	5	6	7	8	9	10
13	Records of complaints on all produce not in compliance with requirements in this standard and their remedial actions shall be made available on site.	1	2	3	4	5	6	7	8	9	10

Part B: Job performance of extensionists

Section J: Quantity of Work		strongly disagrees									strongly agree
J1	I have planned extension program according to the requirements. of SALM certificate	1	2	3	4	5	6	7	8	9	10
J2	I have always conducted educational program to develop clients' capacity and potential.	1	2	3	4	5	6	7	8	9	10
J3	I have conducted educational program satisfactory	1	2	3	4	5	6	7	8	9	10
J4	I always fulfill without fail in getting the required number of clients	1	2	3	4	5	6	7	8	9	10

Section K: Quality of work											
K1	I have conducted educational activities on SALM that meets requirement of accuracy.	1	2	3	4	5	6	7	8	9	10
K2	I have conducted educational activities on SALM systematically.	1	2	3	4	5	6	7	8	9	10
K3	I have made new efforts in educational SALM activities to improve the client's quality of life.	1	2	3	4	5	6	7	8	9	10
K4	I take a personal initiative to meet clients' requirements.	1	2	3	4	5	6	7	8	9	10
K5	I will make sure educational activities I have conducted always meet clients' expectations	1	2	3	4	5	6	7	8	9	10
Section L: Deliver of Time/Timelines											
L1	Educational activities are delivered on time	1	2	3	4	5	6	7	8	9	10
L2	Educational activities on SALM are delivered completely.	1	2	3	4	5	6	7	8	9	10
L3	The Educational activities on SALM targets that I have conducted are within a time frame	1	2	3	4	5	6	7	8	9	10
L4	My services always being provided promptly	1	2	3	4	5	6	7	8	9	10
L5	I provide service according to stipulated time	1	2	3	4	5	6	7	8	9	10
L6	I always make decisions quickly when necessary	1	2	3	4	5	6	7	8	9	10
Section M: Effectiveness of Work											
M1	I always provide priorities to fulfill clients' needs. Saya selalu memberi keutamaan untuk memenuhi keperluan klien.	1	2	3	4	5	6	7	8	9	10
M2	I often give special attention towards clients demands Saya beri perhatian istimewa kepada permintaan pelanggan	1	2	3	4	5	6	7	8	9	10
Section N: knowledge and skill in work											
N1	I have understood what is required for me to do my job.	1	2	3	4	5	6	7	8	9	10
N2	I have sufficient knowledge to perform the job	1	2	3	4	5	6	7	8	9	10
N3	I have the required technical skills to perform the job.	1	2	3	4	5	6	7	8	9	10
N4	I have used the knowledge and skills that I have to perform my duty excellently	1	2	3	4	5	6	7	8	9	10
Section O: Implementation of Policy, Procedures and direction.											
O1	I have carried out my job according to stipulated procedures.	1	2	3	4	5	6	7	8	9	10
O2	I fully understand the appropriate policy /procedures and direction to implement the job.	1	2	3	4	5	6	7	8	9	10
Section P: effectiveness of Communication											
P1	I'm able to give my opinion effectively.	1	2	3	4	5	6	7	8	9	10
P2	I'm able to understand job direction and procedures in writing and orally.	1	2	3	4	5	6	7	8	9	10
P3	I'm able to communicate with my colleague effectively	1	2	3	4	5	6	7	8	9	10
Section Q: Ability to manage											
Q1	My work schedules were organized systematically.	1	2	3	4	5	6	7	8	9	10
Q2	My work station is well organized	1	2	3	4	5	6	7	8	9	10
Q3	My documents are up to date	1	2	3	4	5	6	7	8	9	10
Q4	I maintain my documents in organized manner	1	2	3	4	5	6	7	8	9	10
Q5	I am able to optimize the use of resources under my control to achieve organizational objectives.	1	2	3	4	5	6	7	8	9	10
Section R: Discipline											
R1	I usually come to work on time (punctuality).	1	2	3	4	5	6	7	8	9	10
R2	I deliver educational activities on SALM as scheduled.	1	2	3	4	5	6	7	8	9	10
R3	I abide by rules and regulations.	1	2	3	4	5	6	7	8	9	10
R4	I have delivered my work as agreed.	1	2	3	4	5	6	7	8	9	10
R5	I show persistence in delivery educational activities output.	1	2	3	4	5	6	7	8	9	10
Section S: pro-active and Innovative											
S1	I am able to anticipate consequence of decision and action made.	1	2	3	4	5	6	7	8	9	10
S2	I am able to suggest new idea to bring a lot of changes.	1	2	3	4	5	6	7	8	9	10
S3	I am able to generate alternative ways to perform a task	1	2	3	4	5	6	7	8	9	10
S4	I am willing to take the risk in implementing the new ideas.	1	2	3	4	5	6	7	8	9	10

Section k: Relationship and co-operation										
T1 I work well with my work team	1	2	3	4	5	6	7	8	9	10
T2 I share knowledge freely with my work team/organization member	1	2	3	4	5	6	7	8	9	10
T3 I fully give my commitment to achieve the organization objectives	1	2	3	4	5	6	7	8	9	10
T4 I maintain personal communication with members of organization	1	2	3	4	5	6	7	8	9	10
T5 I establish good rapport with my clients and colleagues	1	2	3	4	5	6	7	8	9	10

SOCIO –DEMOGRAPHIC CHARACTERISTICS

Please write the answers or check ( ) on blank spaces.

1. Tenure of agricultural extension services ……years.
2. Gender: ☐ Male ☐ Female
3. Ethnic ☐ Malay ☐ Chiniez ☐ Indian
4. Age ….. Years.
5. Your current position:
   - ☐ Front line extension worker (PPR)
   - ☐ Supervisor (PR)

6. Level of education
   - ☐ SPM
   - ☐ Certificate of agriculture
   - ☐ Diploma
   - ☐ Bachelor degree
   - ☐ Master degree
   - ☐ Others .please specify……

7. Did you sit any training in extension education before becoming an extension worker?
   Yes ☐ No ☐
8. Did you study extension education in your academic education?
   Yes ☐ No ☐
9. Do you undergo regular in-service training program on GAP practices?
   Yes ☐ No ☐

REFERENCES

1. Ali Hassan Khalil, Maimunah Ismail, Turiman Suandi and Daud Silong, 2008. Relationship between Extensionist Competencies, Organizational Commitment and Job Performance with Performance of Agricultural Extension Workers in Yemen. Unpublished PhD Thesis, University Putra Malaysia.
2. Boyd, B.L., 2003. Competencies for Leaders of Volunteers during the Next Decade: A National Delphi Study, Journal of Agricultural Education, 44(4): 47-57.
3. Belay, K. and D. Abebaw, 2004. Challenge Facing Agricultural Extension Agents. A Case Study from South .Western Ethiopia. African Development Review, 16(1): 139.
4. Cooper, A.W. and D.L. Graham, 2001. Competences needed to be successful country agents and county superiors. February 39(1). Journal of Extension.
5. Cohen, J., 1997. Statistical Power Analysis for the Behavioral Sciences (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates Davis and Verma, 1993.
6. FAO, 2004. Fertilizer use by crop in Malaysia. Retrieved on October 2007, from Http://www.fao.org/ Fertilizer use by crop in Malaysia.
7. Farh, J.L. and J. Werbel, 1986. The Effects of Purpose of the Appraisal and Expectation of Validation on Self –Appraisal Leniency. Journal of Applied Psychology, 71: 527-529.

8. Farrington, J., I. Christoplus, A.D. Kidd and M. Beckman, 2002. Extension, Poverty and Vulnerability: The Scope for Policy Reform (Final Report of a study for the Neuchatel Initiative), Working Paper, 155, Overseas Development Institute, UK.
9. Ishaya, B. Joseph, Henderson, L. Janet and J.D. McCracken, 1992. Relationship Between Assessment Center Performance and Psychological Types of Cooperative Extension Agents in Ohio State University Journal of Agricultural Education, fall, pp: 53-61.
10. Landy, F.L. and J.L. Farr, 1980. Performance Rating. Psychological Bulletin, 87: 72 -107.
11. Long, L. John and Swortzel, A. Kirk 2007. Factors Influencing Individual Job Performance of Extension Agents in the Mississippi State. University Extension Service Mississippi State University. Proceedings of the 2007 AAAE Research Conference, Volume 34.
12. Le Ngoc Thach, Maimunah Ismail, Jegak Uli, Kharudding Idris, 2008. Individual Factors as Predictors of Extension Agents'performance in Mekong Delta, Vietnam, PhD Thesis, University Putra Malaysia.
13. Mohamed Aslam and Asan Ali Gholam Hassan, Development Planning and Regional Imbalances in Malaysia, FEA Working Paper 2003-5, Faculty of Economics and Administration, University of Malaya, Kuala Lumpur, 2003.
14. Mohamed Mohd, Salleh, 2007. Status and Perspectives on Good Agricultural Practices in Malaysia.
15. Normah Othman, 2006. Malaysia's Experience In Training Of Farmers on Good Agricultural Practice. Paper Presented at the FAO/ASMA/FAMA. Regional Workshop on Marketing Training in the Agricultural Supply Chain 20-24 Nov.2006. Kuala Lumpur, Malaysia.
16. Rahim, M., Sail, Raja Badrul Shah Raja Shah Kobat, Abdul Ghani Ibrahim, Ahmad Fuad Muhammad, Mazanah Munammad, Mohd Hanim Mohd Tahir, Mohd Yusof Mohd Noor, Wan Mansor Haji Wan Saleh, 1990. From Smallholeders Practices Constraints and Needs to Appropriate Technology Generation, Development and Adoption. The Care of Rubber Smallholders in Peninsular Malaysia. Rubber Research Institute of Malaysia And University Pertaninan Malaysia.