

## **ANALYSIS OF PROBLEMS AND SUGGESTED SOLUTIONS FOR RUHUNU CHILLI FARMERS IN THE HAMBANTOTA DISTRICT**

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### **ABSTRACT**

A study was carried out on Ruhunu chilli farmers during 2005/06 *maha* season in Hambantota district with the objectives of identifying the problems encountered by farmers and the solutions suggested by them, studying the socio factors related to Ruhunu chilli cultivation and suggesting the solutions to improve Ruhunu chilli cultivation. Fifty five farmers were selected from four Divisional Secretary Divisions and a questionnaire survey was conducted. The data were processed with the aid of SPSS package. Results revealed that input supply, agronomic practices, marketing and information provision were the most important problems. Out of all the problems, there were 44% extension problems and 56% non-extension problems. Input supply, information provision and provision of agronomic solution are the most important measures to develop the chilli crop. Among the farmers' solutions, 48% were extension solutions and 52% were non-extension solutions. Results showed that the inadequate and unequal extension provision was a weakness of the existing extension system. Correlation study showed that extension provision improves farmer's knowledge and level of problem solving capacities. Farmer's knowledge was positively correlated with adoption. Problem solving and adoption were positively correlated with crop development. These results show that the extension provision leads to develop the Ruhunu chilli crop. Conclusions of this study are: (1) High percentage of problems (44%) and solutions (48%) in the Ruhunu chilli cultivation were extension based, (2) Extension provision can improve chilli crop. Therefore, Ruhunu chilli cultivation can be improved by strengthening the extension service.

**KEYWORDS:** Agricultural extension, Crop development, Ruhunu chilli.

### **INTRODUCTION**

Ruhunu Chilli crop, popular as a green chilli, is an important traditional rain-fed genotype grown in Hambantota and adjoining districts. It is one of the main cash crops in this area. However, chilli extent is presently stagnated with seasonal fluctuations at 600 ha level (Progress report, 2006). Although the exact Ruhunu chilli extent in the Hambantota district is not documented, the estimate made by gathering evidence from extension officers in the area indicates that, 65% of the chilli extent of the provincial area is covered with Ruhunu chilli.

Since this crop is grown under rain-fed condition and resource-poor situation, development and strategies for technology transfer may not be feasible as many authors already have reported low effectiveness of technology transfer mode and extension provision for resource poor conditions (Wijeratne, 1988; Chambers *et al.*, 1993; Antholt, 1994). However, correctly planned extension provision for the specific situation would give positive

impact on agricultural production (Garforth, 1996). Considering the importance of this crop and also the capability of correctly planned extension provision to help farmers in order to cope up with the situation, a study was conducted to achieve the following objectives: (1) to compile the problems encountered by the Ruhunu chilli farmers and the solutions suggested by them to improve Ruhunu chilli crop, (2) to study the socio-economic factors related to chilli cultivation, (3) to suggest solutions to improve the crop.

## METHODOLOGY

The study population was all the Ruhunu chilli farmers in the Hambantota provincial area. The study sample was selected by two steps. The first step was the selection of four Ruhunu chilli growing Divisional Secretary (DS) Divisions from Hambantota provincial area “purposively” by naming major DS divisions. Selected DS divisions were Tissa, Suriyawewa, Angunakolapellessa and Tangalla. The second step was to find out the study sample from the selected DS divisions. For this, lists of farmers comprising about 75 Ruhunu chilli growers from each DS division were prepared. Those names were taken from all the chilli growing villages in the division. Then, 15 names were selected randomly from each list, making the study sample as 60. However, actual study sample was 55, missing 5 selected subjects from 3 DS divisions. The study was conducted during 2005/06 *maha* season.

A questionnaire was constructed incorporating the questions from the following areas: farm household background, information exchange and extension provision, availability of inputs, marketing and other infrastructure facilities, crop economics, farmer’s technical knowledge and adoption, farmer’s problems and their vision on solutions. The questionnaire was pre tested with several chilli growers in the Hambantota area. After preparing the questionnaire, a survey was conducted by interviewing chilli farmers. Survey data were tabulated to socio-economic attributes and again separated to problem and solution categories for inferences. In order to evaluate chilli production, indicators such as total chilli yield, income of chille crop, profit, farmer’s indebtedness and farmer’s satisfaction on chilli cultivation were used. A nonparametric correlation test (Sperman’s test) by SPSS programme was done to examine the relationship between relevant socio-economic attributes with the crop development indicators.

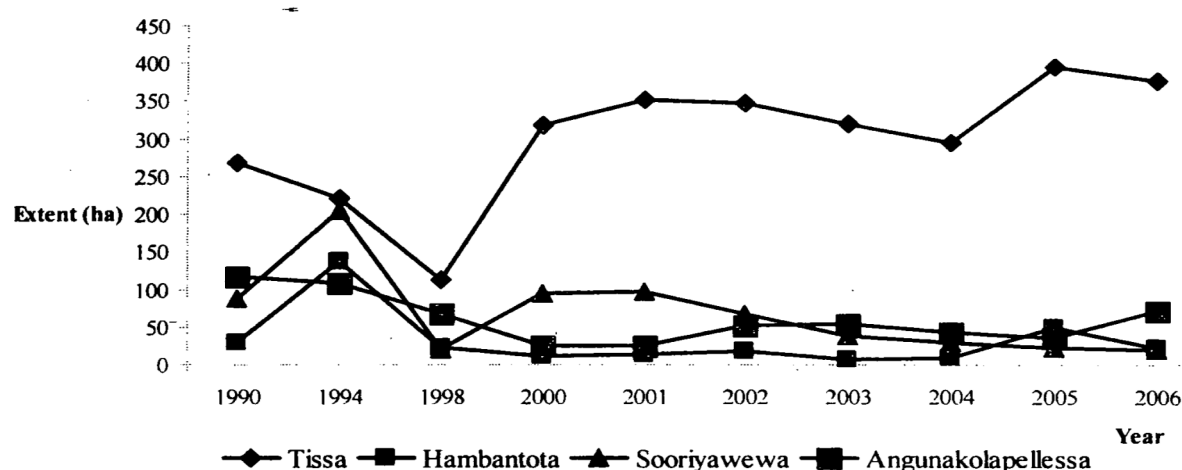
## RESULTS AND DISCUSSION

**Present crop extent**

Figure 1 shows Tissa DS has the highest chilli extent which is on the increase. Other important chilli growing DS divisions are Angunakolapellesa, Hambantota and Suriyawewa. However, their crop extent is gradually decreasing.

According to the study, 61.8% respondents said that their crop extents were currently not changing. However, 30.9% respondents expressed that the crop extent was diminishing and only 7.3% said the crop extent was increasing (Table 1).

Table 2 shows the farmer's perception of reasons for change of extents as agronomic problems (36%), change of market price (36%) and other reasons (27%) (High labour cost, low rainfall etc.).



**Figure 1. Cropping extent (ha) of Ruhunu chilli in the provincial area of Hambantota District.**

source: DD's office, SPDA, Hambantota

**Table 1. Farmer's perception on the change of their individual cultivated extent of Ruhunu chilli in the Provincial area of the Hambantota district.**

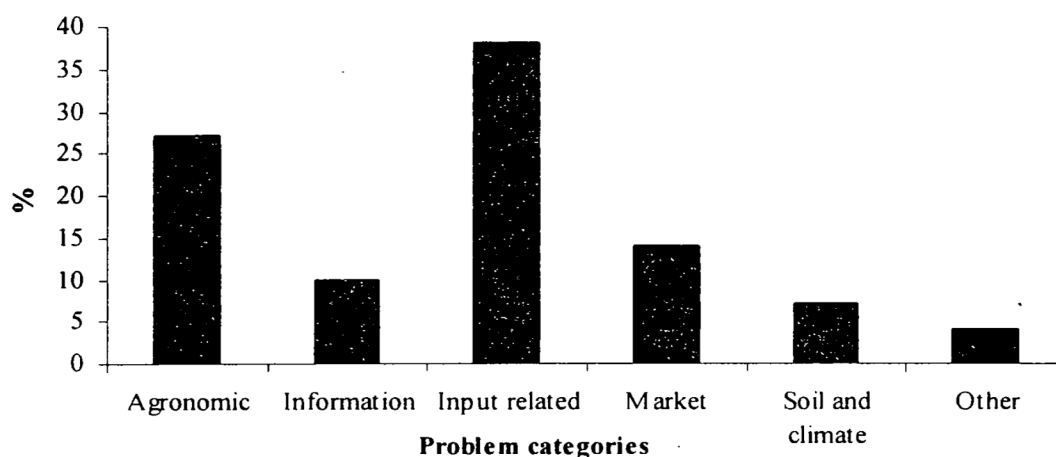
<i>Farmers perception on changing extents</i>	<i>Percentage</i>
Gradually reduced	30.9
Not change	61.8
Gradually increasing	7.3
Total	100

### Problems and solutions

Figure 2 shows six problem areas in the chilli cultivation, among them input supply, agronomic, marketing and information are the most important areas which cover 38%, 27%, 14% and 10% of total problems respectively.

**Table 2. Farmer's perception on reasons for change of Ruhunu chilli extent.**

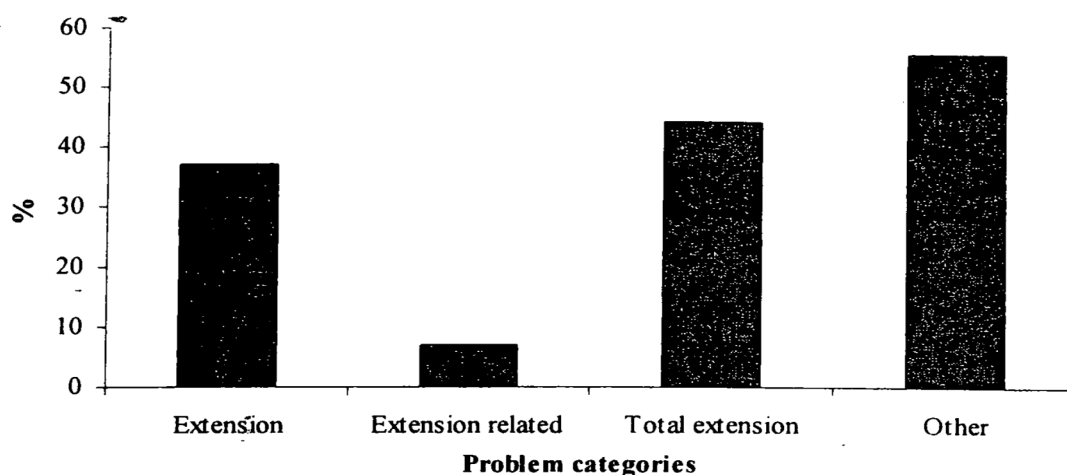
<i>Farmer's reasoning</i>	<i>Percentage</i>
Agronomic problems	36.4
Market prices	36.4
Crop rotation	5.5
Other reasons	21.8
Total	100.0



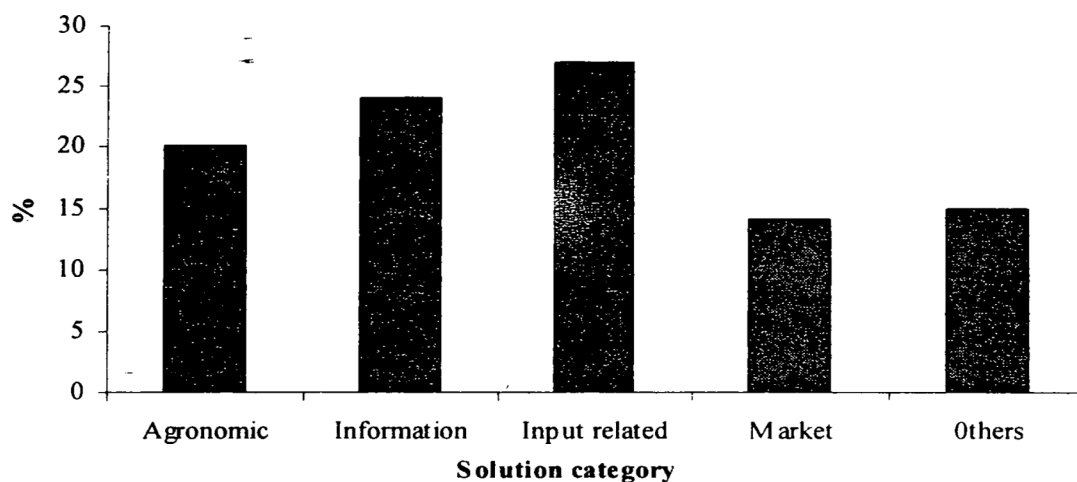
**Figure 2. Farmer's perception on problems of Ruhunu chilli farmers in the Hambantota district (2005/06 maha season).**

Figure 3 shows the comparative importance of problems when they are categorized into extension, extension-related and non-extension problems. According to the data, there were 44% extension problems (both extension and extension related problems) and 56% non-extension problems.

According to Figure 4, there were five solution areas, among them input supply, information provision and agronomic solutions were the most important areas. When the solutions are categorized into extension and non extension contexts, as shown in Figure 5, there were 48% extension related solutions and 52% non extension solutions. This shows that extension problems as well as extension solutions had influenced the fate of chilli cultivation. Therefore, improving of extension provisions would lead to improve chilli production.



**Figure 3. Farmer's perception on extension and non extension problems encountered in the Ruhunu chilli sector.**



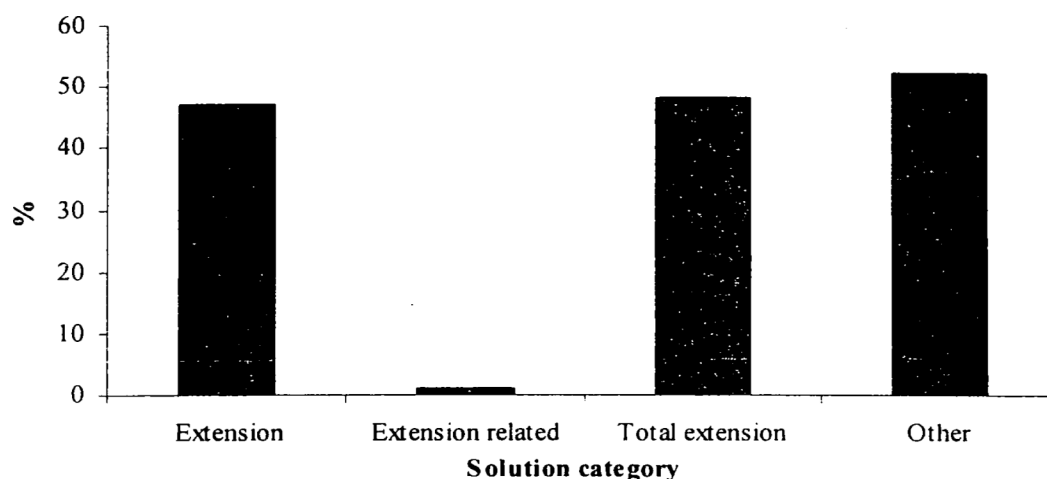
**Figure 4. Solutions suggested by Ruhunu chilli farmers.**

### **Present status of extension provision**

Table 3 shows that 38.2% of farmers did not receive information from officials; 16.4% farmers received information from Agricultural Instructors (AIs) and 10.9% farmers received information from Agricultural Research and Productivity Assistants (ARPAs) and 34.5% farmers received information from both AIs and ARPAs.

According to Table 4, except 3.6% farmers, all other farmers obtained information from agro-chemical shops, 34.5% farmers received information from 1 shop and 40% farmers received information from 2 shops. However, 20% farmers received information from 3 shops.

Table 5 shows that 43.6% farmers did not received information from television, 7.2% farmers received information from television more than 6 times per month, 27.2% farmers received information 4 to 5 times per month.



**Figure 5. Sectoral representation of solutions given by Ruhunu chilli farmers.**

**Table 3. Summary of farmer's response on officials as information source.**

<i>Information source</i>	<i>Percentage of respondent</i>
Did not receive information from officers	38.2
AI	16.4
ARPA	10.9
AI and ARPA	34.5
Total	100.0

**Table 4. Number of shops used by the farmers as technical information sources.**

<i>Number of shops providing information</i>	<i>Percentage</i>
0	3.6
1	34.5
2	40.0
3	20.0
4	1.8
Total	100.0

Table 5 shows that many farmers (75%) did not receive 1 information from the radio. However 18.2% farmers received information from radio 2 to 3 times per month. Farmers expressed the reason for less usage of electronic media as these media did not provide specific information relevant to their main crop chilli.

**Table 5. Number of occasions the farmer obtained technical information from television and radio during a month.**

<i>No. of times per month</i>	<i>Percentage of farmers obtaining information from television</i>	<i>Percentage of farmers obtaining information from radio</i>
0	43.6	74.5
1	7.3	1.8
2	9.1	7.3
3	5.5	10.9
4	14.5	3.6
5	12.7	1.8
6	3.6	0.0
7	1.8	0.0
8	1.8	0.0
Total	100.0	100.0

Appendix 1 shows the number of farmer beneficiaries who were involved with different extension activities during the season. Farmer trainings (47%) and coordination of input supply (25%) were the prominent extension activities. Other important extension activities were: demonstrations (18%), field days (18%) and home management trainings (15%). Data show that 40% of the sample did not obtain extension support during the season, which was one of the weaknesses of the existing extension system.

According to Table 6, only 4% farmers had very high involvement in extension activities (10 to 12 activities) and another 8% farmers had high involvement (7 to 9 activities). Important observation is that 32% farmers had very low (1 to 3 activities) involvement. Therefore, there was very high variation in receiving extension benefits among the farmers. High uneven provision was another weakness of the existing extension system.

**Table 6. Intensity of the receipt of extension provision by chilli farmers during 2005/06 maha.**

<i>Number of extension activities per season</i>	<i>Number of farmers benefited</i>	<i>Percentage</i>
0	22	40
1 to 3	18	32
4 to 6	8	16
7 to 9	5	8
10 to 12	2	4
Total	55	100

### **Attributes of chilli production and their interrelationships**

Appendix 2 shows that resource availability was positively related with chilli yield and income etc. Irrigation, transport and marketing facilities also positively influenced the crop development indicators. There

were number of attributes under the information exchange category which was positively correlated with crop development indicators. Among them, number of farmers as information source, number of occasions the farmer obtained information and the number of occasions per month the farmer obtained information from television are the most important.

According to the Appendix 3, there was less relationship between attributes of extension activities and crop development indicators. Other important observation was that no other attributes except problem solving workshops and farmer training classes (extension components) had correlation with farmer's household economic attributes such as savings and indebtedness. This shows the importance of extension provision on farm household economic management. In addition, the same table shows that problem solving, farmer's knowledge and adoption were highly and positively correlated with crop development attributes. Problem solving on areas of agronomic, marketing and economic highly influenced the crop development indicators. Except adoption of postharvest handling, all other adoption components were highly correlated with the crop development indicators.

Since there was no direct relationship of extension attributes with crop development attributes, some more comparisons were done. Under this, the relationship of extension attributes with problem resolution, farmer's knowledge and adoption were evaluated. Appendix 4 shows the number of extension activities had correlation with solving agronomic problems. In other words, higher number of extension activities would result in solving higher number of agronomic problems. Therefore, extension activities would lead to solve farmer's problems. According to Appendix 5, extension activities such as demonstrations, farmer trainings and field days were highly correlated with farmer's knowledge. Also, extension activities enhance farmer's knowledge on crop production.

## CONCLUSIONS

Input supply, technical information on agronomy, marketing and information provision are the most important factors on Ruhunu chilli production. There are 44% of extension problems and 56% of non extension problems. Weaknesses of the existing extension system are insufficient and unequal extension provision.

Extension provision improves farmer's knowledge and problem solving capacity. Farmer's knowledge is positively correlated with adoption. Problem resolution and adoption are positively correlated with crop development indicators. Therefore, extension provision is required for crop development. Hence, Ruhunu chilli cultivation can be improved by improving existing extension system.

Since extension provision improves farmer's knowledge and level of problem solving capacity, leading to chilli crop development, strengthening extension service is recommended to improve the Ruhunu chilli cultivation.

### ACKNOWLEDGEMENTS

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#### Appendix 1. Farmer beneficiaries of different extension activities.

<i>Extension activity</i>	<i>Beneficiaries</i>	
	<i>No. of farmers participated</i>	<i>% of farmers participated</i>
Demonstration	10	18
Farmer trainings	26	47
Problem solving workshops	5	9
Field days	10	18
Field tours	5	9
Placing banners	5	9
Coordanation of input supply	14	25
Coordination of capital supply	1	2
Coordination of water supply	7	13
Home managemet trainings	8	15
Not get extension support	22	40
Obtain extension support	33	60

**Appendix 2. Correlation coefficient (non parametric) of selected crop development indicators with attributes of input supply, infra structure, marketing and information exchange aspects.**

<i>Farm household area of concern</i>	<i>Other attributes</i>	<i>Selected attributes</i>					
		<i>Total yield of main crop (kg)</i>	<i>Income of agricultural crops</i>	<i>Profit of main crop (Rs)</i>	<i>Amounts of money saved (Rs)</i>	<i>Indebtedness in season I (Rs)</i>	<i>Farmer's satisfaction on cultivation</i>
Physical Resources	Tractor availability	0.31	0.27		0.27	-0.30	
	Water pump availability	0.33	0.37	0.27	0.12	-0.12	0.30
	Capital availability	0.35	0.28	0.32			
	Crop extent in ha		0.37	0.34			
	Family labour availability						
Infra-structure	Hired labour availability	0.32	0.31	0.27			
	Irrigation facilities available for upland	0.36	0.50	0.37			0.34
Marketing	Transport availability	0.37	0.49	0.48			0.36
	Level of solving marketing problems	0.68	0.68	0.66			0.63
Information	No. of farmers as information source	0.40	0.39	0.40			0.42
Exchange	Number of times the farmer obtain information	0.53	0.42	0.54			0.52
	No. of times per season official provide information		0.33				
	No. of shops provide information to the farmers						
	No. of times the farmer obtain information from Radio		0.31				
	No. of times per month farmer obtain information from TV	0.32	0.28	0.44			0.31
	Whether the farmer obtain information from family members						
	Whether the farmer obtain information from news papers		0.36				0.29

**Appendix 3. Correlation coefficient of selected crop indicators with attributes of extension provision, problem solving, farmer's knowledge and adoption aspects.**

<i>Farm household area of concern</i>	<i>Other attributes</i>	<i>Selected attributes</i>				
		<i>Total yield of main crop (Kg)</i>	<i>Income of agricultural crops (Rs)</i>	<i>Profit of main crop (Rs)</i>	<i>Amounts of money saved (Rs)</i>	<i>Indebtedness in season 1 (Rs)</i>
Extension activities	No. of demonstrations conducted			0.28		0.32
	No. of occasions coordinated home management trainings					
	No. of problem solving workshops held				0.28	-0.28
	No. of field days conducted					
	No. of farmer trainings conducted					-0.34
Problem solving	Level of solving agronomic problem	0.52	0.52	0.62		0.56
	Level of solving social problem	0.27				0.31
	Level of solving marketing problem	0.68	0.68	0.66		0.64
	Level of solving economic problem	0.69	0.64	0.73		0.59
Farmer's knowledge	Farmer's knowledge on land preparation		0.32	0.28		
	Farmer's knowledge on fertility	0.30	0.46	0.27		0.28
	Farmer's knowledge on planting	0.38	0.38	0.30		0.28
	Farmer's knowledge on plant protection	0.47	0.44	0.40		0.31
	Farmer's knowledge on weed management	0.37	0.55	0.32		0.26
	Farmer's knowledge on water management	0.35	0.48	0.28		0.34
	Farmer's knowledge on postharvest handling	0.42	0.46	0.41		0.39
	Farmer's adoption	Farmers adoption of (%) land preparation	0.56	0.67	0.46	
	Farmers adoption of (%) fertility	0.45	0.52	0.43		0.38
	Farmers adoption of (%) planting	0.30	0.50			

Farmers adoption of (%) plant protection	0.48	0.56	0.42	0.52
Farmers adoption of (%) weed management	0.37	0.55	0.32	0.26
Farmers adoption of (%) water management	0.35	0.55	0.27	0.30
Farmers adoption of (%) post harvest handling	0.11			

**Appendix 4. Correlation of extension activities with problem solving activities.**

<i>No of extension activities</i>	<i>Level of solving agronomic problem</i>	<i>Level of solving social problem</i>	<i>Level of solving marketing problem</i>	<i>Level of solving economic problem</i>
Demonstrations	0.53			0.28
Farmer trainings	0.67			
Problem solving workshops	0.40			
Field days	0.55			
Coordination of water supply			0.39	0.35
Home management trainings		0.37		