



Uva Wellassa University
Faculty of Animal Science & Export Agriculture
B.Sc in Export Agriculture
End Semester Examination – Feb/ March 2012
Year IV Semester I



New Product Development (EAG 441-2)

Instructions

Answer all questions.

No. of questions : Two (02)
No. of pages : Two (02)
Time : 01 hour
Total marks allocated : 50%

Index No :

PART III – ESSAY

- riables
1. In product development process “early warning” concept is very important in order to produce a consumer reliable product. Therefore, certain activities are to be introduced into the product development process to detect failures or non-conformance occurrence as against the requirement as earlier stage as possible. Explain, under what stages of the product development process that early warnings have to be carried out.

(25 Marks)

- (25 Marks)
2. An oil extractor wanted to develop an edible grade oil product to the consumer market by controlling development of Free Fatty Acids during oil extraction. Therefore, he has decided to conduct an experiment pertaining to the two factor factorial design with two variables “seed coat and enzyme” at two levels “with & without seed coat and with & without enzymes”.

- i. Design an experiment with respect to the two factor factorial design.
- ii. How many treatment combinations that you are going to analyze and what they are?

Development of free fatty acids during oil extraction with respect to the treatment combinations are given below.

Treatment	Free Fatty Acid level
Raw seed with seed coat	5.5
Raw seed without seed coat	8.5
Blanched seed with seed coat	0.5
Blanched seed without seed coat	2.5

Treatment combinations and effect

Effect	Treatment combination				Divisor
	(1)	a	b	ab	
A	-	+	-	+	2
B	-	-	+	+	2
AB	+	-	-	+	2
Mean	+	+	+	+	2

$$\text{Estimate effect} = \frac{\text{Contrast}}{2^{(f-1)}}$$

$$\text{Sum of square of effect} = \frac{(\text{Contrast})^2}{2f}$$

- iii. Complete an ANOVA table using above data
- iv. Determine which factor/s are highly influential in developing Free Fatty Acids
- v. Explain the manufacturer how to make edible grade oil with respect to the outcome of the experiment.

(25 Marks)