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Composition and Processing of Grenadan Nutmeg

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PIP/Grenada/August 86/No. 53.3

University of Idaho

College of Agriculture

in cooperation with

United States Agency for International Development

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EXECUTIVE SUMMARY

Grenadian nutmeg has been avoided by U.S. processors due to rumors that it is difficult to grind. PIP, working with the USAID/Grenada Mission and the Grenada Cooperative Nutmeg Association, studied the quality characteristics of Grenadian nutmeg from August 1984 to December 1987.

Differences in nutmeg composition appeared to be due to agricultural practices and seasonal factors. It is recommended that a study concentrating on the climatic variations in composition be conducted. A laboratory in Grenada would be necessary to accurately complete these tests. In the interim, it may be assumed that the volatile-oil content of nutmeg will be higher at higher elevations during the drier months. The volatile-oil content is less predictable during rainy months. Current drying practices in Grenada are adequate as long as moisture content is reduced to approximately 6 to 8%. Fat content seems to be independent of all the factors looked at in this study.

The observations in this limited study indicate that differences in seasonal and agricultural practices contribute to the variability in composition.

Finally, a laboratory capable of analyzing fresh samples the day they are collected is necessary to determine true cause and effect relationships between seasonal, geopgraphic, and cultivation parameters.

INTRODUCTION

Grenadian nutmeg is rumored to be difficult to grind and consequently has been avoided by United States processors. Previous research by the authors (Drown, et. al., 1986) found that nutmeg grinding characteristics are affected by the volatile oil content. The previous work also showed that large composition variation existed among Grenadian nutmeg samples. For these reasons, the composition of Grenadian nutmeg is an important consideration when developing a production and marketing plan for the product.

The Postharvest Institute for Perishables (PIP) worked with the Grenada Cooperative Nutmeg Association (GCNA) from August 1984 to December 1987 to develop a greater understanding of the composition of Grenedian nutmeg and consequently upgrade and maintain product quality control. In 1984, PIP consultant Wayne Henry visited Grenada to analyze the nutmeg marketing situation there. In his report, Marketing of Grenadian Spices in the U.S.A. (PIP/Grenada/Nov. 84/No. 53) he recommended that USAID fund the following work:

Short Term:

Study and compare the grinding techniques, problems, cost, etc. of Grenadian nutmeg and mace versus Indonesian nutmeg and mace. (Preliminary investigations to locate qualified laboratories are already completed.)

Long Term:

Study the various quality characteristics of nutmeg, mace, cloves, and cinnamon grown in different parts of the world compared to the Grenadian counterparts.

Determine the economic feasiblity of marketing nutmeg from Grenada other than in its whole form. Examples: grind and package in Grenada, crack and protect for further grinding in the U.S., oil extraction recovering and concentration in volatiles, etc.

Conduct an investigation of the Indonesian nutmeg industry to determine the trends in the largest producer country relating to modernization of facilities, organization of grower associations (which might lead to better marketing efficiency), projections on future crop yields based on last five-year plantings and any other changes that might show an increase or decrease in Indonesia's share of the world market. A knowledge of what is happening in Indonesia might be the basis for substantial changes in Grenada's nutmeg industry. This information would eliminate some of the unknowns and better enable Grenada to invest its money more wisely in preparing for the future in this important crop.

Based on these recommendations, the USAID/Grenada Mission funded PIP to:

1. Quantify the range of total oil content in samples of nutmeg. Document the fat content difference between Grenadian and Indonesian products to provide marketing assistance data.

2. Compare the chemical composition differences in the essential oils which flavor, and hence, determine the quality and marketability of Grenadian and Indonesian nutmegs. (DAN-1323-B-01-6017-00, Delivery Order No. 1) See Appendix C for complete Scope of Work.

The results of Item 1 above were presented in A Comparative Study of Grenadian and Indonesian Nutmegs (PIP Task Report No. 1). Based on the results of this work it became obvious that further analyses of the nutmeg was necessary, specifically regarding seasonal, geographic, and processing chararcteristics. The results of Item 2 are presented in this report, Composition and Processing of Grenadian Nutmeg.

The chemical analysis work for this project was carried out at the University of Idaho Department of Chemical Engineering using nutmeg provided by the GCNA. Dr. David Drown also visited Grenada and sent back nutmeg samples to the University of Idaho for analyses. Samples of nutmeg from specific locations on the island of Grenada and from various stages of the curing process were obtained. Each sample was analyzed for steam volatile oil, moisture, fat, and inert solids. The observations from the plantation and processing station visits were described as background information.

Task 2 in the Scope of Work, Data Collection for Production Run, will be presented as PIP GTS report PIP/Grenada/Sept. 87/No. 53.4 by Dr. Wayne Henry.

BACKGROUND

Grenada nutmeg plantations are small, typically one to three acre farms. In fact, there are over 7,000 registered plantations on the island. A few plantations range from five acres to the largest of about fifteen acres. All nutmeg plantations appear to be mixed plantings of nutmeg, banana, cocoa, cloves, cinnamon, allspice, breadfruit, soursop, lime, grapefruit, and a variety of other plants including coconut palms.

Nutmeg collection

Nutmeg is not really harvested, but is collected after it has fallen to the ground. When the nutmeg is ripe, the pod splits open and the nutmeg kernel, wrapped in mace, falls to the ground. Freshly dropped nutmeg is easy to spot due to the bright, scarlet red mantle of mace surrounding the nutmeg. However, within a day or two, the mace begins to decay, darkens in color, and a black mildew mold forms. If nutmeg is not collected soon enough, the seed may actually sprout or begin to rot in the interior of the hull. Once the mace darkens, it becomes difficult to see the nutmeg on the ground. Since many farmers do not have a standard practice of collecting nutmegs, they apparently lose a reasonable percentage, perhaps as much as 20% of the nutmeg crop, by inefficient collection. The potential exists for aflatoxin development if the nutmeg is not collected and dried before mildew begins.

After farmers gather the nutmeg, they remove the mace. Nutmeg and mace are handled separately from this point on. The nuts without mace are usually bagged in sacks and hand carried, or sometimes trucked, to the 21 local receiving stations. At the receiving stations, the nutmegs are screened on an approximately 1/4 inch to 3/8 inch grid screen. The obviously rotten nutmegs are hand sorted during this screening. The good nutmegs are scraped into a bag off the end of the screen. The acceptable nutmegs are weighed, and the farmer paid for his product.

Nutmeg drying and hulling

The regional receiving stations each have drying racks where the nutmegs are spread out, about three to four nuts deep, on screened trays inside the

building, where natural air circulation through the room dries the nutmeg. The drying buildings are totally enclosed, but have large screened windows for ventilation. The nutmegs are raked to turn them over two to three times per day. The nutmegs are cured in this manner for four to six weeks. Nutmegs are considered dry when they detach from the hull so the internal "nut" rattles against the hull. Also, to help determine when a batch is dry, a random sample is broken open, sliced with a knife, hand squeezed, and observed for dryness. It takes about one week to fill a tray, and then the nutmegs are dried for four to six weeks, so the drying time can be anywhere from four to seven weeks, or more, within a tray.

When nutmegs are determined to be dry, they are bagged in approximately 150 pound gunnysacks and put in line for hulling and sorting. Three regional processing stations do all of the hulling and sorting. These are located in Grenville, Gouave, and Victoria.

The nuts are hulled by pouring them into a wooden funnel which feeds them through a hammer-mill type device. It consists of a rotating wheel with three or four teeth, or spikes, sticking out which propel the nuts against a metal breaker plate on the sidewall. The cracked hulls and nuts then drop through to a sorting table below. Next, the mixture is hand sorted into whole nutmegs, hulls, and broken pieces. Nuts whose hulls were not cracked are bagged and carried back to be recycled in the hulling mill. The sorted nutmegs, hulls, and pieces are then bagged and carried to their respective processing steps.

Nutmeg sorting

Whole nutmegs are placed in wicker baskets and floated in water. The sound nutmegs, being heavier than water, sink to the bottom. The unsound, or defective, nutmegs float and are skimmed off the top. Nutmegs are then dried for one day in ambient, air-drying trays before the final sizing. Nutmegs which are not size graded are bagged and sold as "sound unassorted". About two percent of the final production is size selected; they are screened to various size ranges which give average counts of 110, 80, or 65 nuts to the pound, or to other customer-requested size selections. The rejects from the various steps of the process are combined into what is termed "defective"

nutmegs and sold at a lower price. It was estimated by GCNA that 30 to 40% of the total amount processed ends up classified as defective. Whole floaters and sound, broken pieces make up the bulk of the defective mixture, with bruised and split seeds constituting the balance. Defectives are not insect or mold infested. The lowest quality seeds, which may be moldy or insect damaged, are sold as "grinders" for use as feedstock for oil distillation to produce a nutmeg oil extract. The sorted nutmegs are bagged, labeled, and stored for shipment. Just prior to shipment, the bags are fumigated, then transported to St. George's and exported.

Nutmeg cultivation

The Mirabeau Agricultural Experiment Station has a small plantation area of only nutmeg trees of two different varieties. The Malicot is the standard Grenadian variety of tree. The Malian is a Malaysian grafted variety which is being evaluated for future plantings in Grenada.

Cecil Wells, field inspector for the GCNA, stated that pure nutmeg cultivations with trees planted in rows, the ground cleared underneath, and proper fertilization, had significantly higher yield than the normal, random-mixture plantings. He also stated that if the trees were more widely spaced than in the Mirabeau plantation, they would have an even higher yield.

Eric Wardally, Assistant Manager at the Horseshoe Beach Hotel, owns three plantations on various parts of the island, including the east and west sides, at higher, middle and lower elevations. He stated that correct mulching and fertilization definitely increase productivity, yield, and size of the nutmegs. However, according to him, most farmers practice little, or no, fertilization or care of the trees. He also stated that nutmeg at the higher elevations, while slightly slower to mature, develops larger, denser, "higher quality" nutmeg than trees planted at lower elevations.

It is common practice for the typical, small land owner to basically neglect cultivation and care of his crops and land. The owner merely takes whatever grows and falls off the trees. Little attention is given to trying to improve productivity by proper drainage, clearing of undergrowth, and fertilization of the trees.

The technical literature indicates that trees will be either male or female, with a male tree required for every eight to 10 female trees for a productive plantation. The trees are actually randomly planted, if they are planted at all. They appear to be more of a natural jungle growth. It was stated by one of the GCNA board members that bisexual trees do exist. These trees have male flowers on one side, female on the other; therefore, a tree can self-pollinate.

METHODOLOGY

In the spring of 1986, nine small nutmeg samples from various locations on the island of Grenada were obtained from the Grenadian Cooperative Nutmeg Association. Each sample was analyzed for steam-volatile oil, moisture, fat, and inert solids. The results of this preliminary study indicated that nutmeg collected from higher altitudes contained significantly more volatile oil. Data from these samples also showed a distinct difference in composition of nutmegs collected on the east and west side of the island. However, this distinction might also have been due to seasonal factors, since the east-side collection took place in January, while the west-side collection occurred in late March. The uncertainty surrounding the history of the samples and the small number of samples available made it difficult to draw general conclusions. Therefore, a more extensive test was conducted to verify the geographic correlations observed, as well as to track the composition as a function of process drying history.

During August 1986, fifty-two separate samples of nutmeg were collected. The samples to be studied, as a function of drying time, were collected at the Grenville Processing Station. One sample of the final product from the Gouyave Processing Station was also analyzed. Those to be evaluated with respect to location were collected at various sites around the island. All the samples were then shipped to the University of Idaho where they were analyzed for steam-volatile oil, moisture, fat, and inert solids.

The American Spice Trade Association recommends specific procedures for steam-volatile oil and moisture determinations (ASTA, 1985). In this research Method 5.0 was used for volatile oil and Method 2.0 for moisture. To determine the fat and inert solids contents, a standard ether extraction

process was used by the Animal Sciences Department of the University of Idaho. A complete description of these methods can be found in a progress report on this work (Drown, 1986).

RESULTS

A description of each sample and its identifying label is presented in Table 1. (All tables and figures are presented at the end of this report.) The samples collected from the Grenville Processing Station were analyzed with respect to drying time, while location and elevation were the independent variables for the analysis of the plantation field samples, and included the samples from the previous study. Appendix B is a more detailed explanation of the collection notes and the idenfiying labels. Table 2 presents a summary of the compositional analysis results. The raw data collected on each sample can be found in Appendix A. Results presented in Table 3 are standard deviations for the individual samples. Compositional results presented as component-to-solids ratios are found in Table 4.

Because the moisture content varies greatly from sample to sample, fresh-weight comparisons are difficult to make. Therefore, it is desirable to index the compositions to a component of nutmeg that is independent of field-handling techniques or drying. For this reason the graphical results are presented as components-to-solids ratios. The exception is Figure 10, which depicts the weight percent of volatile oil along with a standard deviation bar. Figures 1-3 display composition ratios as a function of elevation and location, while Figures 4-6 display the composition ratios as a function of drying time.

Analyses of volatile oil, fat, and moisture content

The analyses of volatile oil and moisture required seven months. Although samples were carefully stored in "ziplock" bags at approximately 5°C, some concern still existed that perhaps composition had changed during this time. For this reason, graphs were prepared to track moisture and volatile-oil results as a function of analysis date. Figures 8 and 9 show that the moisture and volatile oil contents are completely independent of analysis date.

Examination of the results illustrates just how strong the variability among individuals can be. This does not pose a problem for the nutmeg, but it certainly creates difficulty in making generalizations. Table 2 lists the components in terms of weight percents and the component closure. This closure ranges from 96.65 to 104.48 with an average value of 100.72 and a standard deviation of 2.066. This indicates a low, experimental analyses deviation and a high composition variability in the nutmeg. A glance at Table 3, which lists average weight percents of the oil and moisture content, along with the standard deviations for each sample, also indicates that variability is the dominating factor. A visual illustration of this is presented in Figure 10, which shows the average values of the east side plantation samples with their standard deviation error bar. The replicate analysis deviations are not large enough to obscure sample-to-sample variations.

Figure 1 is a plot of oil/solids ratio against elevation. This figure strongly suggest that seasonal factors play an important role in the volatile-oil content of Grenadan nutmeg. The samples collected in January on the east side of the island had the lowest volatile-oil content. Those collected in March on the west side of the island were somewhat higher in volatile-oil content, but still lower than those samples collected in August. Since January and March are part of the dry season in Grenada and August is part of the rainy season, there is reason to suspect that rainfall may be a controlling factor. Secondly, during the dry season, it appears that elevation also plays a role in the volatile oil of nutmeg. For both the January and March samples, the volatile oil increased with increasing elevation. However, during the rainy season, the relationships with elevation are not as clear. For instance, on the east side of the island the volatile oil increases until around 1000 feet and then drops again. On the west side of the island the opposite occurs. The volatile-oil content starts out high at low elevations, decreases at 1000 feet and then increases again slightly with increasing elevation. Based on this data, there is not enough information to explain the behavior of the volatile oil content during the rainy season. During the rainy season, it appears that neither geography nor elevation is a factor in volatile-oil content, and the upper dashed line on Figure 1 is simply an average of all the points for the month of August.

Fat content versus elevation is depicted in Figure 2. There is no reason to suspect that fat content is a function of either climate or elevation. In this figure, the straight line through the center of the graph is simply the average of all the fat/solids ratios shown. The presence of two high values at 500 feet probably makes the average a little high, but it is still easy to see that the fat content of Grenadian nutmeg is normally quite predictable. The exception in this study occurred at 500 feet where some unusually high and low values were obtained. From the available information, it appears that the fat content varies more at lower elevations than at higher elevations. However, none of the available information gives any indication of why this occurs.

Moisture versus elevation is the subject of Figure 3. During the dry season, (January and March samples) the moisture content of the nutmeg was very consistent. The moisture/solids ratio was between 0.135 and 0.15. These samples were collected by GCNA personnel and dried at least three weeks prior to shipment, so this is not a reflection of the actual field moisture of nutmeg, but shows the level that Grenadian nutmeg achieves when it has been cured. During the rainy month of August, elevation and geographical location could be affecting the moisture content of the samples. The west side samples during August were significantly higher than the east side samples collected during the same month. Furthermore, in both cases, the moisture content of the samples increased with increasing elevation. Unfortunately, not all samples were handled the same because of shipment delays and mold problems. In order to correctly determine seasonal and geographic effects, it will be necessary to have a field laboratory capable of immediate analysis of freshly harvested samples. Based upon the data available, it appears that moisture content depends on both elevation and location during at least the rainy season. The currently available data does not provide any reliable information on fresh nutmeg for the dry season.

Effects of drying time

In addition to the effect of location on the constituents in nutmeg on the Island of Grenada, the effect of drying time on the composition of the spice was evaluated. Figure 4 indicates that the volatile-oil content does decrease slightly with process drying time. The line on the graph is a linear fit of

the data. Figure 5 shows that drying time is not a factor affecting the fat content of the various samples. On the other hand, the moisture content decreases in an exponential fashion as a function of drying time as shown in Figure 6. During process drying time, the first three weeks are the important ones. After the initial moisture decrease, continued drying results in very slow moisture removal. Therefore, it is not surprising that the extended cure tests (Test 1EC group, Table 2) show little difference in the composition of the nutmeg.

Final product comparisons

Figure 7 compares the final products of nutmeg on the Island of Grenada on the basis of component/solids ratios. Essentially the nutmeg is classified so that three different types of product are sold. Sound, whole nuts without visible defects are sold as the highest quality product. The other two products are made up of two defective mixtures. The first mixture consists of floaters and broken or bruised nuts. The second mixture consists of what is referred to as grinders: bad pieces which are actually nuts that are mildewed or moldy. It was hoped that this comparison would indicate that the broken nuts currently being sold as defects would have a lower volatile-oil content and therefore would offer an alternative of a lower volatile nut. However, this was not shown. The high and low values indicated with the volatile oil/solids ratios and the fat/solids ratios are simply the highs and lows out of all of the samples in this study, excluding defect samples. All of the final products are relatively low in volatile oil. This is particularly true of the final product of high elevation, whole, sound nuts from the Grenville and Gouyave processing stations. This is not surprising since volatile oil does decrease with drying time. In fact, the only defective product that fell outside of the normal component/solids ratios was the whole-floaters product. It had substantially lower fat content than any of the other samples in this study. Since fat is heavy, the lack of fat causes these nuts to float.

CONCLUSIONS AND RECOMMENDATIONS

Many of the difficulties arising in this study are the result of the analyses being performed in a lab far removed from the collection site. Handling and shipping of the samples increase the possibility that the samples will be damaged or lost. In this study, mold and mildew formation during shipping was, at times, a rather severe problem. Also, the collection and labelling methods could not be monitored as closely as the researcher would have liked for reliable analyses. Lastly, researchers in Idaho are just not familiar enough with local climatic and agricultural conditions on Grenada to see other correlations that might be occurring with the data. Factors such as local topography, microclimates, soil conditions, differences in harvesting practices, seasonal variations, and other nuances as yet unconsidered, may account for many of the observed variabilities. Therefore, it is recommended that a Grenadian laboratory staffed with local technicians be set up to perform the analyses. In addition to eliminating the shipping and handling problems, it would also afford year round and more in-depth studies.

It seems likely that climate is playing an important role in the composition of nutmeg on the island. In the initial samples, the differences in composition appeared to be due to the locations on either the east or west side of the island. However, with the inclusion of the August data, it became apparent that seasonal factors are probably more significant than geographic factors. It is recommended that a study concentrating on climate related to variations in composition be conducted. To emphasize, a laboratory on Grenada is necessary for this kind of endeavor.

In the interim, it may be assumed that the volatile-oil content of nutmeg will be higher at higher elevations during the drier months. The volatile-oil content is less predictable during rainy months. The current drying practices are adequate as long as moisture content is reduced to approximately 6 to 8%. Fat content seems to be independent of all the factors looked at in this study. Further conclusions are difficult to make with the limited data available thus far.

United States spice-processing firms desire a consistent composition nutmeg as their raw material. In order for the Grenada Cooperative Nutmeg Association

to market directly to the United States, they must provide a consistent product of lower volatile-oil content. The observations of this limited study indicate that differences in seasonal and agricultural practices contribute to the variability in composition. It is recommended that GCNA develop a management system to encourage uniform agricultural practices. Price incentives to the farmer based on oil-content specifications would be one method to encourage improved cultivation and harvesting methods. A laboratory in Grenada, capable of analyzing fresh samples the day they are collected, is necessary to determine true cause and effect relationships between seasonal, geographic, and cultivation parameters.

Figure 1 – Volatile Oil vs. Elevation

Oil/Solids Ratio

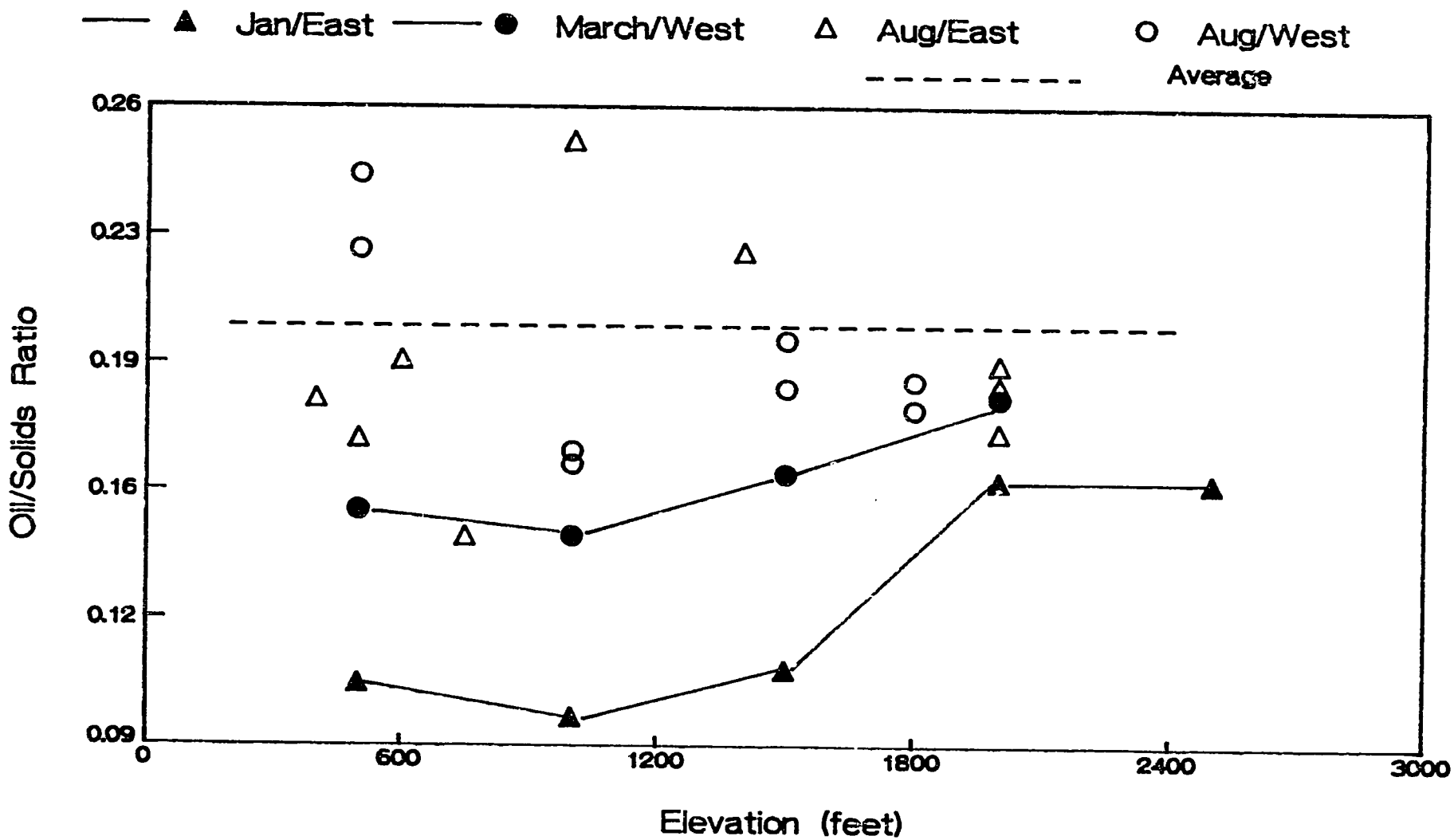

Figure 2 – Fat Vs. Elevation

Fat/Solids Ratio

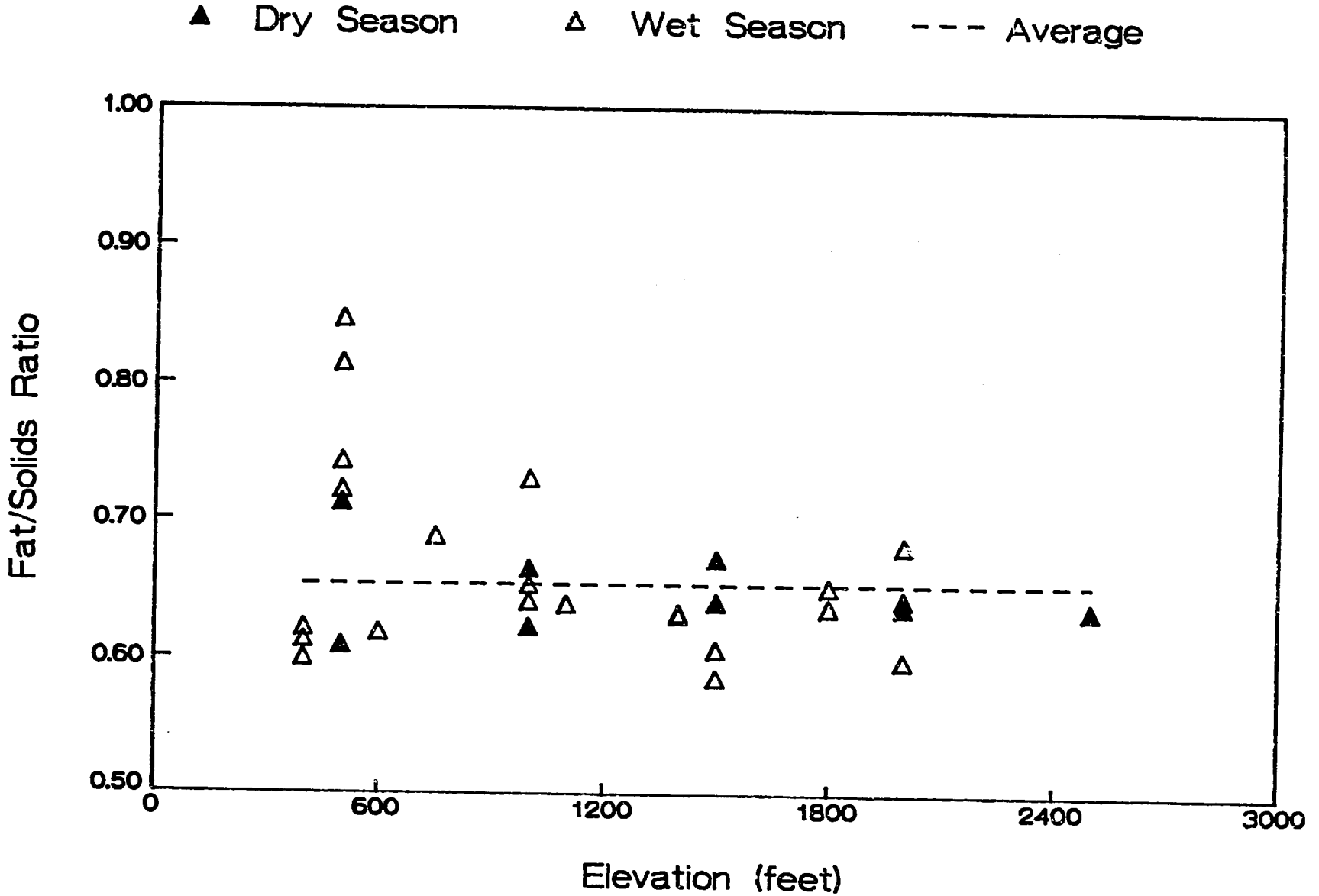

Figure 3 – Moisture vs. Elevation

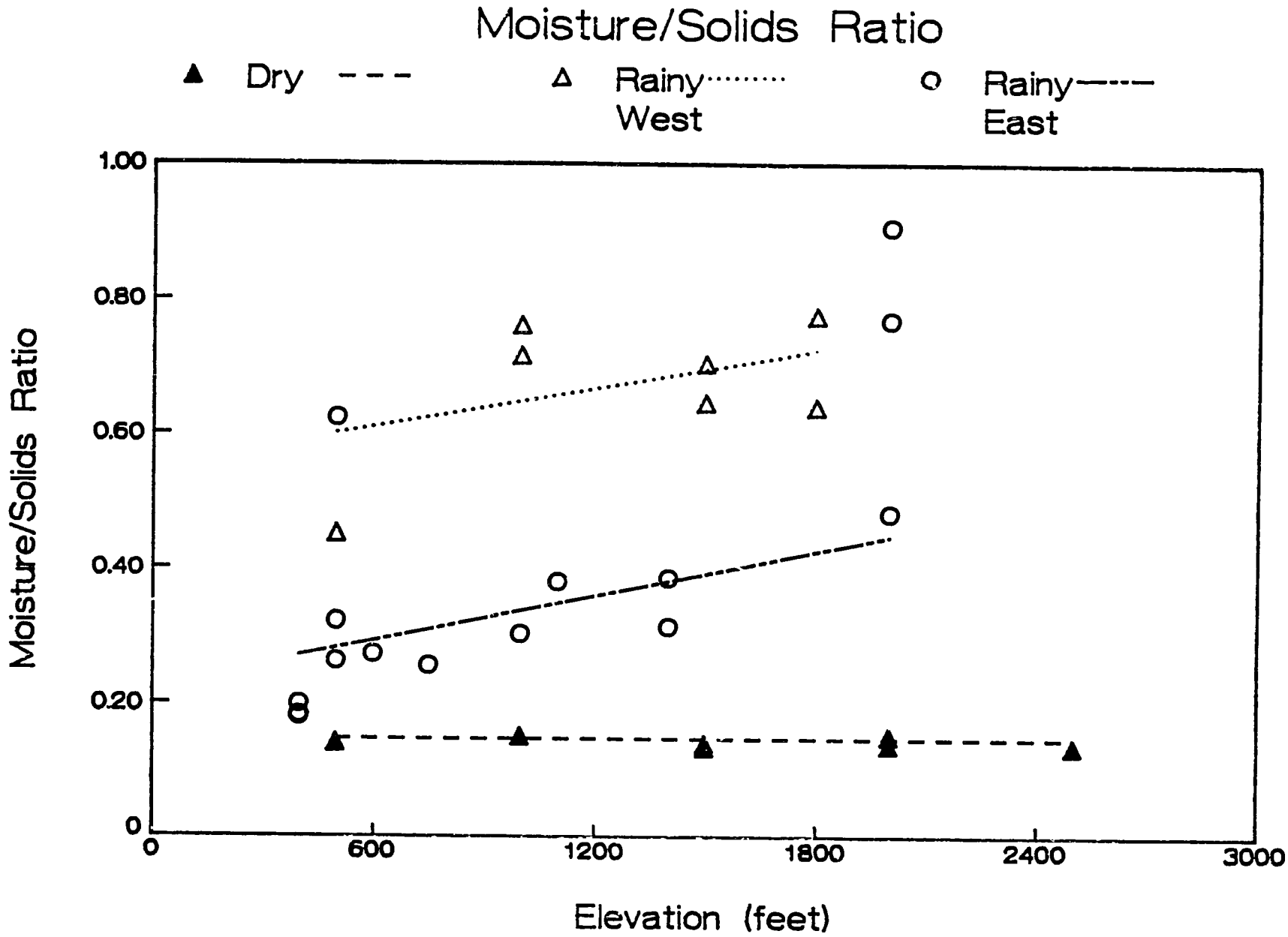

Figure 4—Volatile Oil vs Drying Time

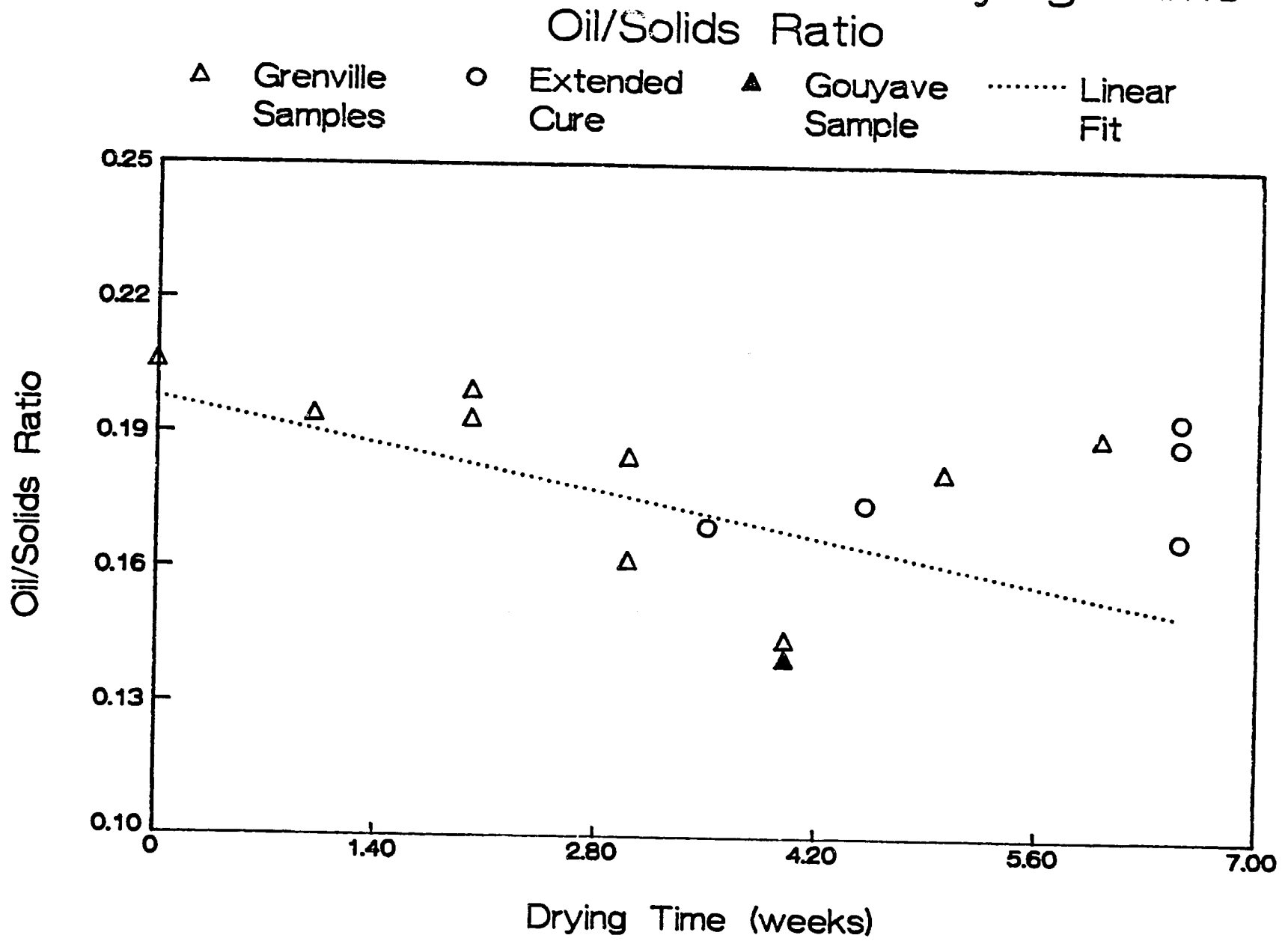

Figure 5 – Fat vs Drying Time

Fat/Solids Ratio

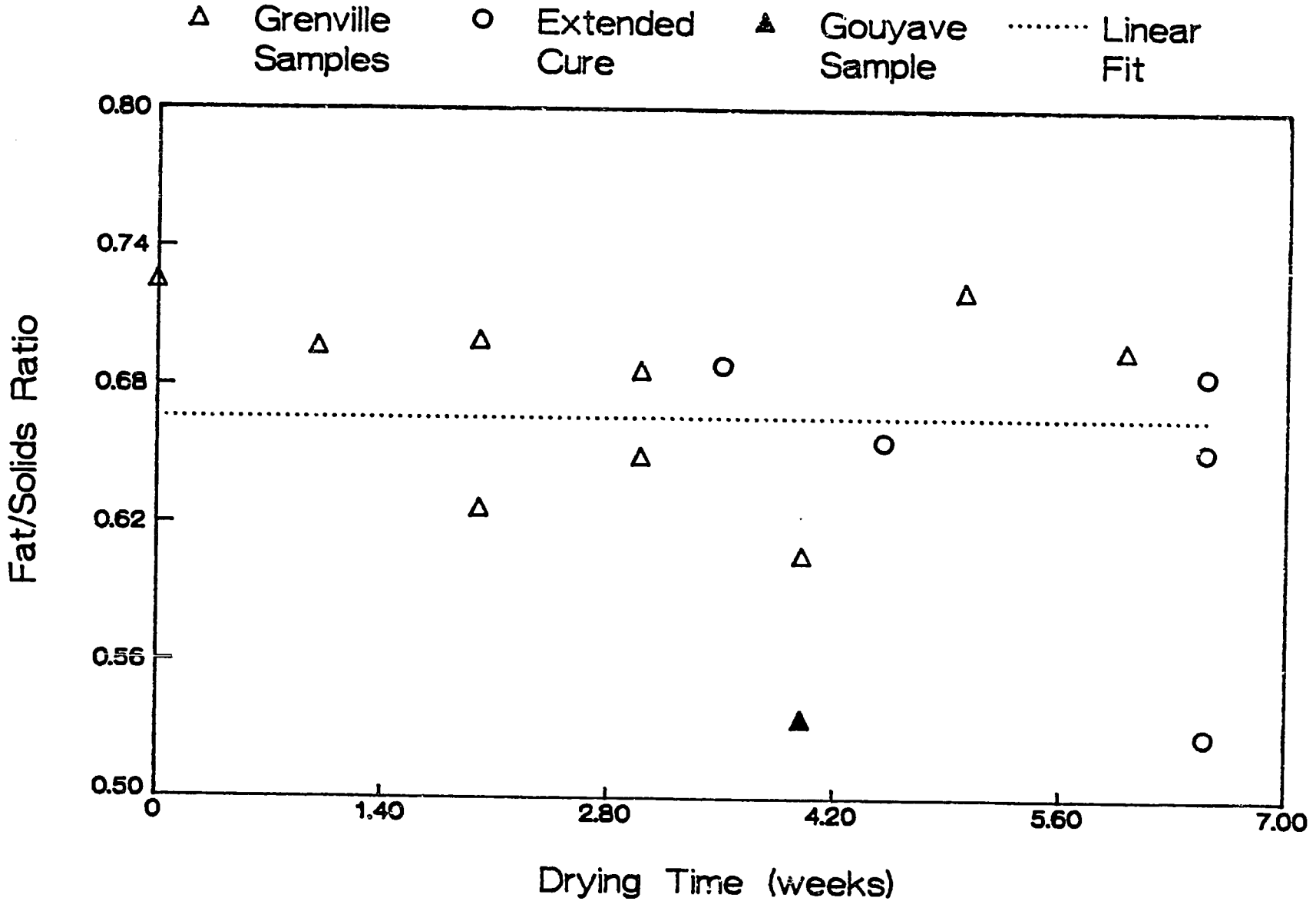

Figure 6 – Moisture vs Drying Time

Moisture/Solids Ratio

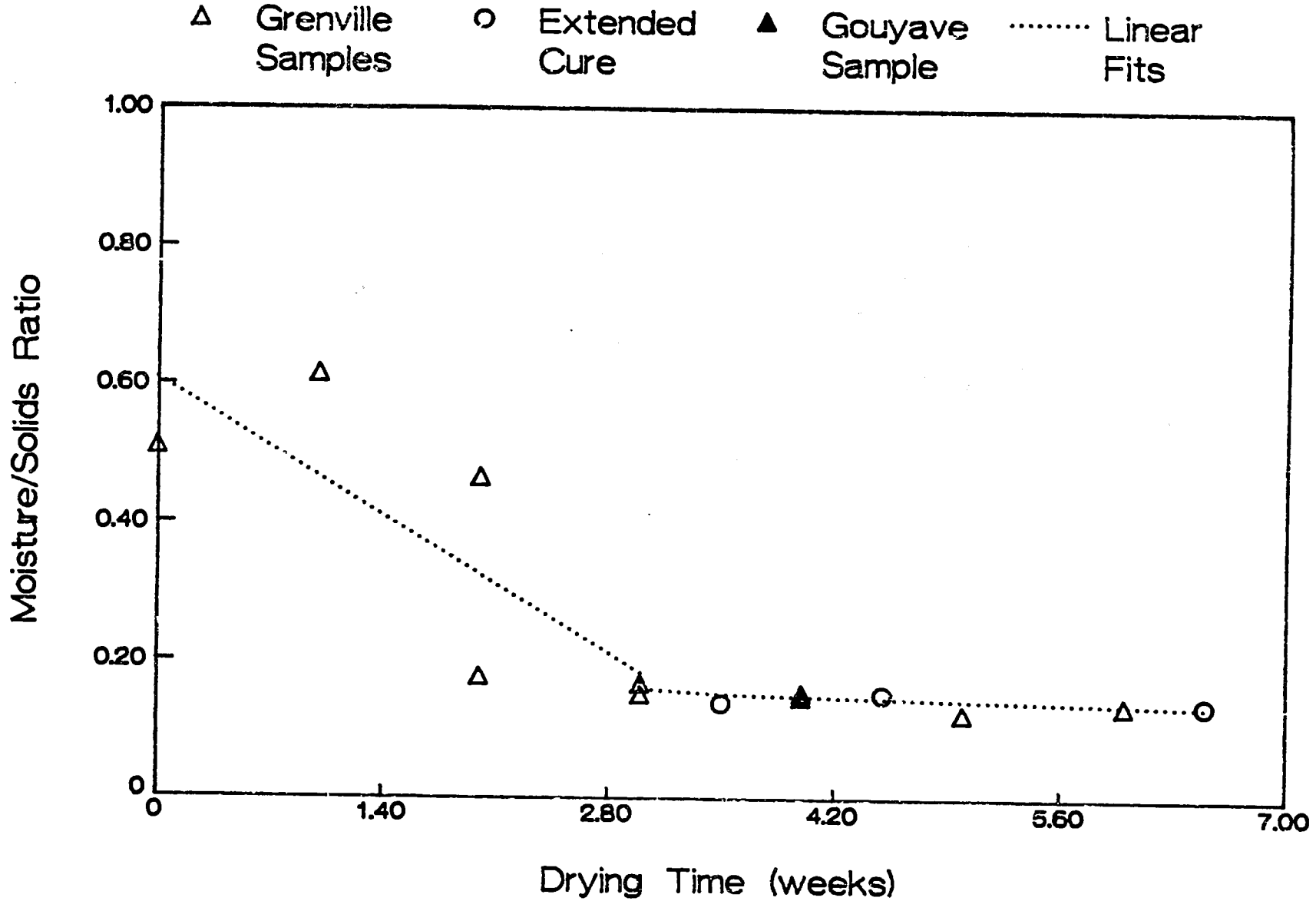

Figure 7 – Final Products
Comparison of Components/Solids Ratios

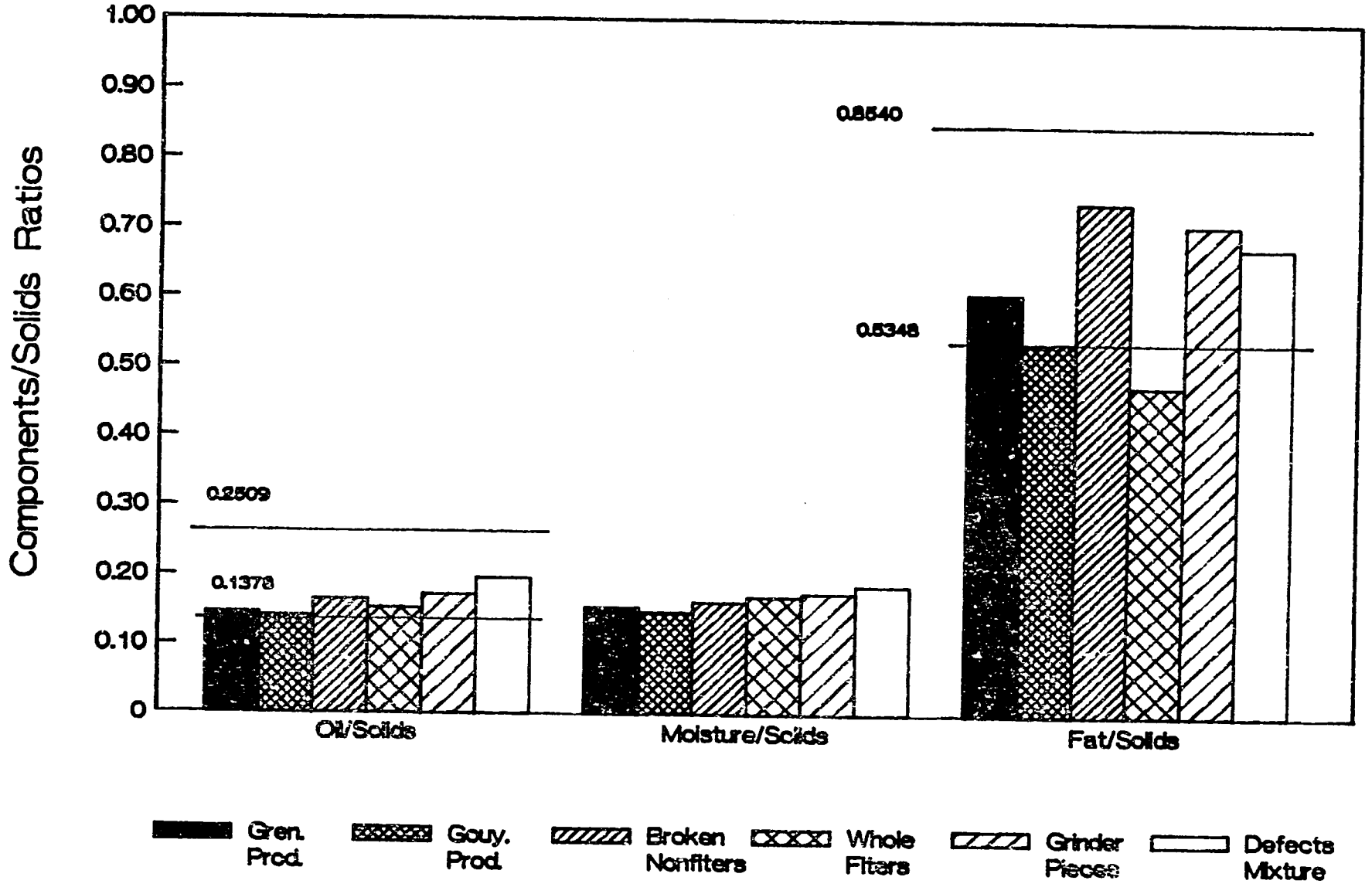

Figure 8 – Volatile Oil Variations
High – Low and Average Values

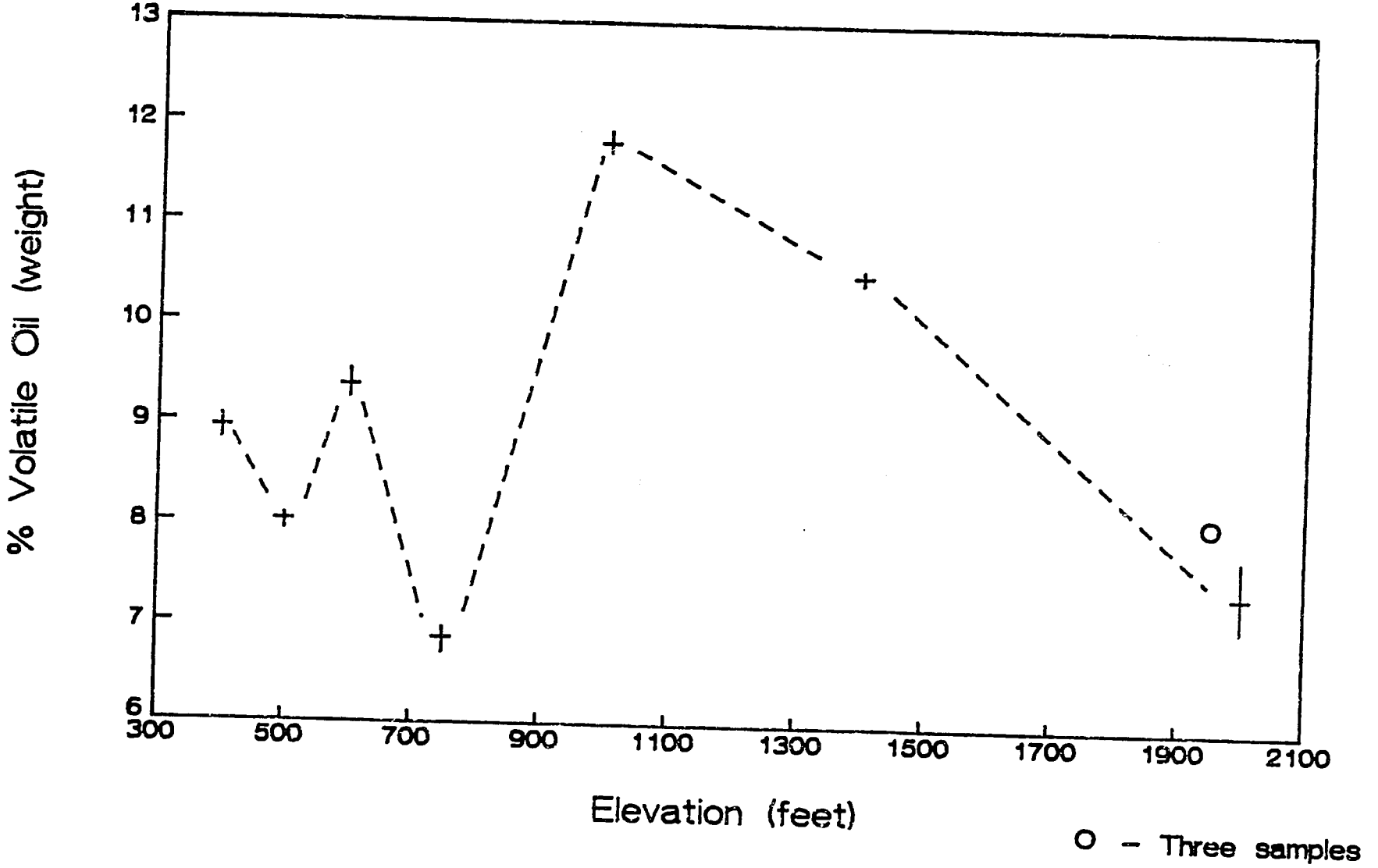

Figure 9 Volatile Oil vs Analysis Date

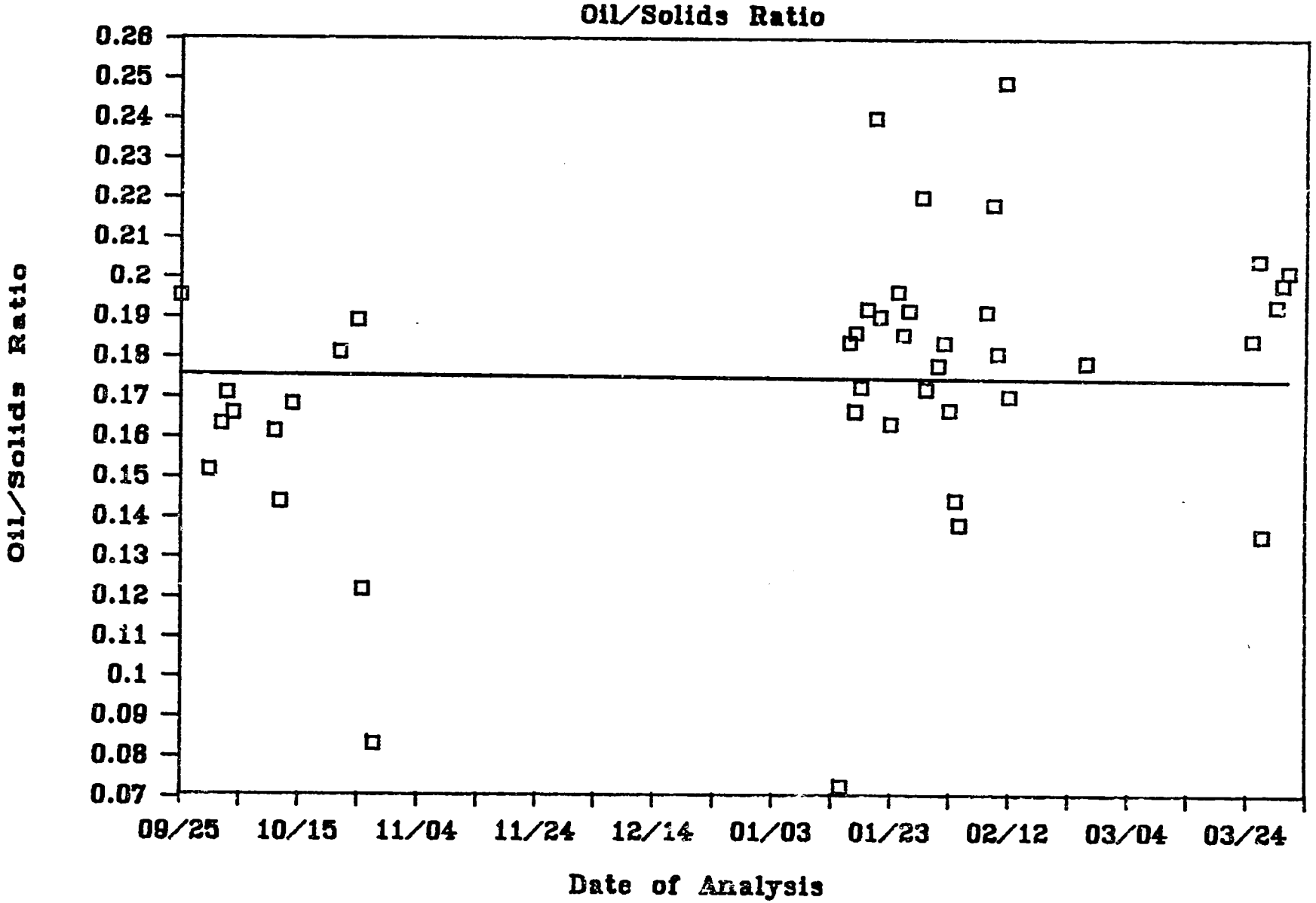

Figure 10 – Moisture vs Analysis Date

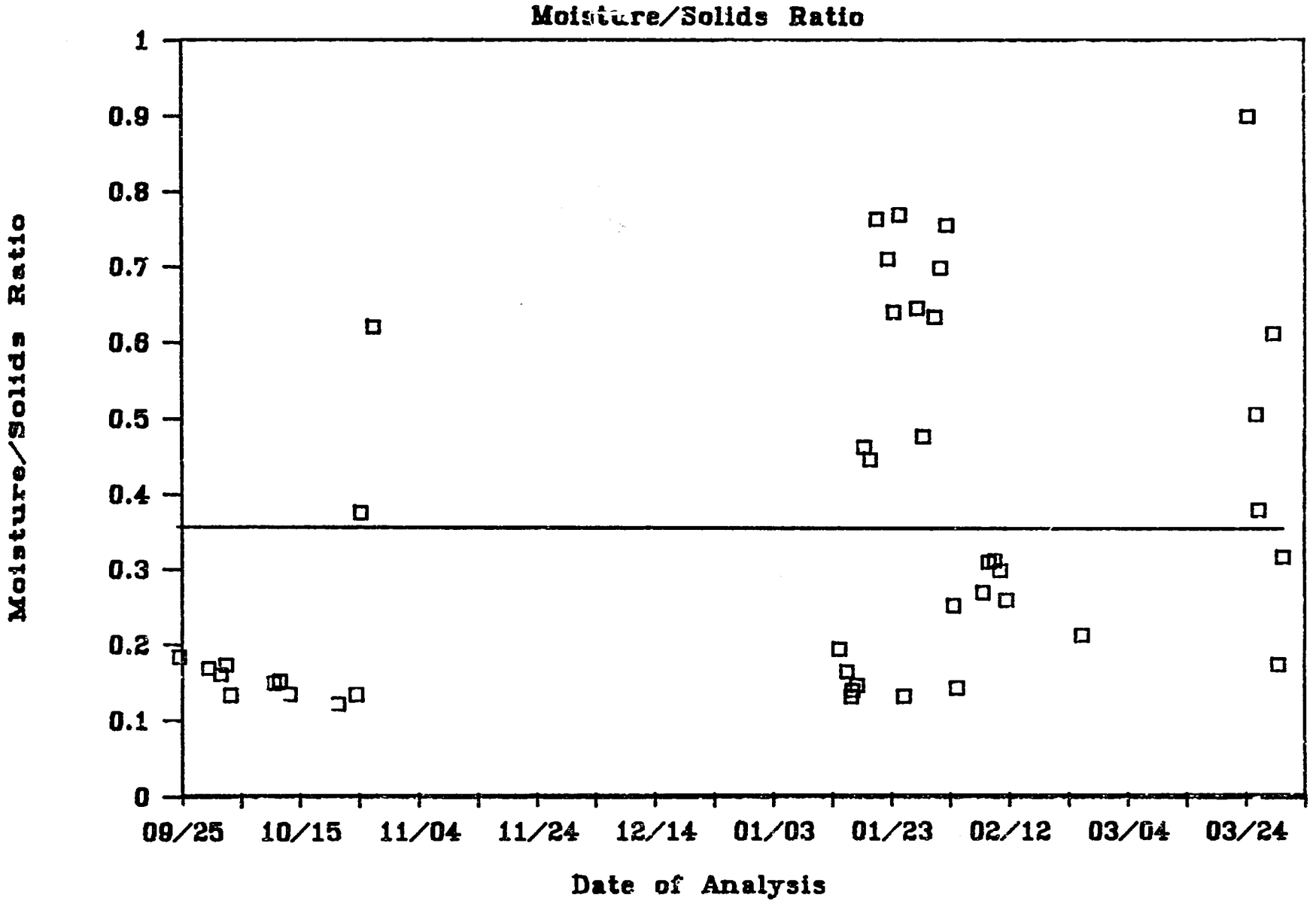

TABLE 1

Description of Samples

Grenville Processing Station Samples

Label	Description, Collection Date
Gren PS 1	0 to 5 day drying (0 weeks) 8/8/86
Gren PS 2	6 to 11 day drying (1 week) 8/8/86
Gren PS 3	12 to 20 day drying (2 weeks) 8/8/86
Gren PS 4	21 to 29 day drying (3 weeks) 8/8/86
Gren PS 5	30+ day drying (4 weeks) 8/8/86
Gren PS 6	Defects, broken pieces 8/29/86
Gren PS 7	Defects, floaters, 1-day dry 8/29/86
Gren PS 8	Defects, non-floaters 8/29/86
Gren PS 9	Defect mixture 8/29/86
Gren PS 11	2 week dry 8/29/86
Gren PS 12	3 week dry 8/29/86
Gren PS 13	4 week dry 8/29/86
Gren PS 14	5 week dry 8/29/86
Gren PS 15	6 week dry 8/29/86
Gren PS 16	7 week dry 8/29/86
Gren PS 17	Defects, floaters, 1-day dry 8/29/86
Test 1EC-A	Extended cure test-Starting Sample 8/8/86 -equivalent to Gren PS 4 or Gren PS 5
Test 1EC-B	1 week extended cure 8/29/86
Test 1EC-C	2 week extended cure 8/29/86
Test 1EC-D	3 week extended cure 8/29/86
Gouyave Processing Station	Final Product 8/14/86

Table 1 - Continued

August 1986 Plantation Field Samples

Label	Location, Elevation, Collection Date
East P 1	Grand Etang-Waite, 1500 ft., 8/8/86
East P 2	Grand Etang-St. Margaret, 1000 ft, 8/8/86
East P 3	Birch Grove-Phillip, 750 ft., 8/8/86
East P 4	Brandon Hall-Cecil Wells, 500 ft., 8/8/86
East P 5	Mirabeau-C. Forrester, 400 ft., 8/8/86
East P 6	Paraclete-R. Rush, 600 ft., 8/8/86
East P 7	Blaize-P. Garcia, 2000 ft., 8/8/86
East P 8	Mt. St. Catherine-Salim, 2000 ft., 8/8/86
East P 9	Pyrenees-R.H. Jereen, 2000 ft., 8/8/86
West P 11	Brothers St. John-Chetram, 500 ft. 8/14/86
West P 12	St. Mary-Banana Station, 1000 ft., 8/14/86
West P 13	St. Mary-Clozier, 1500 ft., 8/14/86
West P 14	Top Clozier-Banana St., 1800 ft., 8/13/86
South P 15	Thebaide-St. David's, 400 ft., 8/15/86
South P 16	Mt. Agnes-L. Sargent, 1400 ft., 8/14/86
Northwest P 10	Union-Maggie Edwards, 500 ft., 8/22/86
North P 17	Mt. Rose-NE side, 500 ft., 8/16/86
North P 18	Plaisance Estate-Sodah, 1100 ft., 8/14/86
East P 19	Mirabeau Ag. Station, Malian nutmeg
East P 20	Mirabeau Ag. Station, Malicot nutmeg

January and March 1986 Field Samples

January Collection East Side	March Collection West Side
Elevations	Elevations
500 ft	500 ft
1000 ft	1000 ft
1500 ft	1500 ft
2000 ft	2000 ft
2500 ft	

TABLE 2

NUTMEG ANALYSIS - Summary of Fresh Weight Compositions (%) and Component Closures

Sample Description	Oil	Moisture	Fat	Solids	Component Closure (Sum of %)
Gren PS 1A	8.43	20.82	29.68	40.96	99.89
Gren PS 2A	7.90	25.01	28.34	40.70	101.95
Gren PS 3A	9.67	8.53	33.85	48.42	100.47
Gren PS 3B	7.33	10.18	*	*	
Gren PS 4	7.83	7.29	33.19	48.37	96.68
Gren PS 5A	7.33	7.79	30.77	50.76	96.65
Gren PS 5B	8.75	8.18	*	*	
Gren PS 11	8.56	20.61	27.75	44.29	101.21
Gren PS 12	9.32	8.41	32.71	50.41	100.85
Gren PS 13	9.31	7.72	*	*	
Gren PS 14	9.15	6.22	36.26	50.30	101.93
Gren PS 15	9.51	6.81	34.81	50.06	101.19
Gren PS 16	9.39	6.80	*	*	
Gren PS 6	8.00	7.90	36.09	48.83	100.82
Gren PS 7	8.28	9.24	25.81	54.35	97.68
Gren PS 8	8.33	8.48	34.36	48.55	99.72
Gren PS 9	9.50	9.00	32.74	48.49	99.73
Gren PS 17	8.92	7.55	29.50	53.19	99.16
Gouyave PS	7.74	8.15	29.53	55.21	100.63
Test 1	9.09	7.17	*	*	
Test 1EC-A	8.48	6.91	34.45	50.06	99.90
Test 1EC-B	8.89	7.71	33.40	50.95	100.95
Test 1EC-D	9.64	7.00	35.07	51.22	102.93
Test 1EC-D	8.68	7.12	27.43	51.96	95.19
Test 1EC-D	10.12	7.15	34.03	52.21	103.51

* Sample size was insufficient to analyze for fat and solids content

Table 2 - Continued

Sample Description	Component Closures				
	Oil	Moisture	Fat	Solids	
East P 2	11.80	14.20	30.13	47.04	103.17
East P 3	6.85	12.00	32.37	47.05	98.27
East P 4	8.02	12.25	33.67	46.69	100.63
East P 5B	8.94	15.41	30.45	49.00	103.80
East P 6B	9.37	13.23	30.03	48.58	101.21
East P 7	10.50	14.92	30.19	47.72	103.33
East P 8A	7.36	29.46	26.18	38.39	101.39
East P 8B	7.73	21.38	26.66	44.54	100.31
East P 9A	7.03	34.19	23.94	37.76	102.92
West P 11	9.69	18.03	32.62	40.06	100.40
West P 11B	8.06	23.59	31.00	36.30	98.95
West P 12A	6.35	27.53	28.09	38.50	100.47
West P 12B	6.65	30.00	25.76	39.48	101.89
West P 13A	8.11	26.39	23.98	40.94	99.42
West P 13B	7.50	28.47	24.53	40.47	100.97
West P 14A	7.27	30.05	24.73	38.82	100.87
West P 14B	7.36	26.15	26.69	40.97	101.17
Nwest P 10	9.08	14.33	33.11	44.60	101.12
North P 17	3.90	28.93	22.25	46.41	101.49
North P 18	5.87	18.11	30.62	47.79	102.39
South P 15	3.81	10.22	31.57	51.45	97.05
South P 15	9.44	11.35	31.48	52.21	104.48
South P 16	6.67	18.62	30.57	48.42	104.28
Mirabeau Ag. Station					
Malcot	7.43	21.66	*	*	
Malian	7.27	21.55	*	*	

Average Closure - 100.72
Standard Deviation - 2.066

* Sample size was insufficient to analyze for fat and solids content

Table 2 - Continued
(Prelimanry Study)

Component Closures

East Side Samples - January

Elevation	Oil	Moisture	Fat	Solids	Component Closure (Sum of %)
500	5.73	7.55	32.65	53.66	99.59
1000	5.23	8.01	33.28	53.49	100.01
1500	5.78	7.26	33.49	52.27	98.8
2000	8.25	7.64	32.74	50.77	99.4
2500	8.3	6.99	32.91	51.8	*

Average Closure - 99.45
Standard Deviation - 0.43537

West Side Samples - March

Elevation	Oil	Moisture	Fat	Solids	Component Closure (Sum of %)
500	7.65	7.03	35.7	50.14	100.52
1000	7.34	7.54	33.45	50.36	98.69
1500	8.18	6.74	33.84	50.36	99.12
2000	9.4	7.06	33.07	51.46	100.99

Average Closure - 99.83
Standard Deviation - 0.95202

* The value for inert solids was found by summing the oil, moisture and fat fractions and subtracting the result from unity. Insufficient sample was available to measure solids directly.

TABLE 3

NUTMEG ANALYSIS - Summary of Moisture and Volatile Oil Averages and Standard Deviations

Sample Description	Dry Time (Weeks)	% Oil Average	% Oil Std Dev	% Moisture Average	% Moisture Std Dev
Gren PS 1A	0	8.43	0.14	20.82	0.14
Gren PS 2A	1	7.90	0.04	25.01	0.16
Gren PS 3A	2	9.67	0.16	8.53	0.10
Gren PS 3B	2	7.33	0.08	10.18	0.59
Gren PS 4	3	7.83	0.26	7.29	0.23
Gren PS 5A	4	7.33	0.41	7.79	0.46
Gren PS 5B	4	8.75	0.08	8.18	0.19
Gren PS 11	2	8.56	0.03	20.61	0.21
Gren PS 12	3	9.32	0.07	8.41	0.22
Gren PS 13	4	9.31	0.15	7.72	0.21
Gren PS 14	5	9.15	0.01	6.22	0.09
Gren PS 15	6	9.51	0.18	6.81	0.23
Gren PS 16	7	9.39	0.35	6.80	0.22
Gren PS 6, Defects-Broken pieces		8.00	0.50	7.90	0.15
Gren PS 7, Floaters, 1 day dry		8.28	0.38	9.24	0.08
Gren PS 8, Non-floaters		8.33	0.03	8.48	0.30
Gren PS 9, Defect mixture		9.50	0.31	9.00	0.29
Gren PS 17, Floaters, 1 day dry		8.92	0.19	7.55	0.29
Test 1		9.09	0.22	7.17	0.17
Test 1EC-A		8.48	0.11	6.91	0.12
Test 1EC-B		8.89	0.31	7.71	0.15
Test 1EC-D, Pr. A		9.64	0.03	7.00	0.07
Test 1EC-D, Pr. B		8.68	0.07	7.12	0.19
Test 1EC-D, Pr. C		10.12	0.04	7.15	0.10
Test 1EC-D, Pr. D		8.97	0.08	6.88	0.34
Gouyave Station		7.74	0.10	8.15	0.46

Table 3 - Continued

NUTMEG ANALYSIS - Summary of Moisture and Volatile Oil Averages and Standard Deviations

Sample Description	Elevation (Feet)	% Oil Average	% Oil Std Dev	% Moisture Average	% Moisture Std Dev
East P 2	1000	11.80	0.11	14.20	0.17
East P 3	750	6.85	0.13	12.00	0.35
East P 4	500	8.02	0.08	12.25	0.42
East P 5B	400	8.94	0.12	15.41	0.46
East P 6B	600	9.37	0.14	13.23	0.37
East P 7	1400	10.50	0.07	14.92	0.20
East P 8A	2000	7.36	0.12	29.46	0.39
East P 8B	2000	7.73	0.17	21.38	0.29
East P 9A	2000	7.03	0.13	34.19	0.24
West P 11	500	9.69	0.11	18.03	0.49
West P 11B	500	8.06	0.18	23.59	0.36
West P 12A	1000	6.35	0.18	27.53	0.32
West P 12B	1000	6.65	0.18	30.00	0.18
West P 13A	1500	8.11	0.18	26.39	0.39
West P 13B	1500	7.50	0.01	28.47	1.15
West P 14A	1800	7.27	0.05	30.05	*
West P 14B	1800	7.36	0.11	26.15	0.20
Northwest P 10	500	9.08	0.07	14.33	0.39
North P 17	500	3.90	0.04	28.93	0.17
North P 18	1100	5.87	0.06	18.11	0.31
South P 15A	400	3.81	0.16	10.22	0.36
South P 15B	400	9.44	0.18	11.35	0.11
South P 16A	1400	6.67	0.19	18.62	0.76

* Reflects the result of a single test (Two of the three replicate samples boiled dry during the analysis.)

Table 3 - Continued
(Preliminary Study)

NUTMEG ANALYSIS - Summary of Moisture and Volatile Oil Averages and Standard Deviations

East Side Samples

Sample Month	Elevation (Feet)	% Oil Average	% Oil Std Dev	% Moisture Average	% Moisture Std Dev
Jan.	500	5.73	0.397	7.55	0.375
Jan.	1000	5.23	0.145	8.01	0.078
Jan.	1500	5.78	0.209	7.26	0.382
Jan.	2000	8.25	0.155	7.64	0.064
Jan.	2500	8.3	0.25	6.99	0.332

East Side Samples

March	500	7.65	0.136	7.03	0.028
March	1000	7.34	0.197	7.54	0.17
March	1500	8.18	0.513	6.74	0.042
March	2000	9.4	0.312	7.06	0.028

TABLE 4

Summary of Component/Solids Ratios

Sample Description	Dry Time (Weeks)	Oil/Solids Ratio	Moisture/Solids Ratio	Fat/Solids Ratio
Gren PS 1A	0	0.2058	0.5083	0.7246
Gren PS 2A	1	0.1941	0.6145	0.6963
Gren PS 3A	2	0.1997	0.1762	0.6991
Gren PS 3B	2	*	*	*
Gren PS 4	3	0.1619	0.1507	0.6862
Gren PS 5A	4	0.1444	0.1535	0.6062
Gren PS 5B	4	*	*	*
Gren PS 11	2	0.1933	0.4653	0.6266
Gren PS 12	3	0.1849	0.1668	0.6489
Gren PS 13	4	*	*	*
Gren PS 14	5	0.1819	0.1237	0.7209
Gren PS 15	6	0.1900	0.1360	0.6954
Gren PS 16	7	*	*	*
Gren PS 6		0.1638	0.1618	0.7391
Gren PS 7		0.1523	0.1700	0.4749
Gren PS 8		0.1716	0.1747	0.7077
Gren PS 9		0.1959	0.1856	0.6752
Gren PS 17		0.1677	0.1419	0.5546
Test 1		*	*	*
Test 1EC-A		0.1694	0.1380	0.6882
Test 1EC-B		0.1745	0.1513	0.6555
Test 1EC-D, Fr. A		0.1882	0.1367	0.6847
Test 1EC-D, Fr. B		0.1671	0.1370	0.5279
Test 1EC-D, Fr. C		0.1938	0.1369	0.6518
Gouyave Station		0.1402	0.1476	0.53486687

* Sample size was insufficient to analyze for fat and solids content

Table 4 - Continued

Sample Description	Elevation (ft)	Oil/Solids Ratio	Moisture/Solids Ratio	Fat/Solids Ratio
East P 2	1000	0.2509	0.3019	0.6405
East P 3	750	0.1456	0.2550	0.6880
East P 4	500	0.1718	0.2624	0.7211
East P 5B	400	0.1824	0.3145	0.6214
East P 6B	600	0.1929	0.2723	0.6182
East P 7	1400	0.2200	0.3127	0.6326
East P 8A	2000	0.1917	0.7674	0.6819
East P 8B	2000	0.1736	0.4800	0.5986
East P 9A	2000	0.1862	0.9055	0.6340
West P 11	500	0.2419	0.4501	0.8143
West P 11B	500	0.2220	0.6499	0.8540
West P 12A	1000	0.1649	0.7151	0.7296
West P 12B	1000	0.1684	0.7599	0.6525
West P 13A	1500	0.1981	0.6446	0.5857
West P 13B	1500	0.1853	0.7035	0.6061
West P 14A	1800	0.1873	0.7741	0.6370
West P 14B	1800	0.1796	0.6383	0.6515
Northwest P 10	500	0.2036	0.3213	0.7424
North P 17	500	0.0840	0.6234	0.4794
North P 18	1100	0.1228	0.3789	0.6407
South P 15A	400	0.0741	0.1986	0.6136
South P 15B	400	0.1808	0.2174	0.6029
South P 16A	1400	0.1376	0.3846	0.6314
Mirabeau Ag Station				
Malcot Variety		*	*	*
Malian Variety		*	*	*

* Sample size was insufficient to analyze for fat and solids content

Table 4 - Continued
(Preliminary Study)

East Side Samples

Sample Month	Elevation (ft)	Oil/Solids Ratio	Moisture/Solids Ratio	Fat/Solids Ratio
Jan.	500	0.1068	0.1407	0.6085
Jan.	1000	0.0978	0.1497	0.6222
Jan.	1500	0.1106	0.1389	0.6407
Jan.	2000	0.1606	0.1505	0.6373
Jan.	2500	0.1602	0.1349	0.6353

est Side Samples

March	500	0.1526	0.1402	0.712
March	1000	0.1458	0.1497	0.6642
March	1500	0.1624	0.1338	0.672
March	2000	0.1827	0.1372	0.6426

APPENDIX A

Raw Data

I. Volatile Oil and Moisture Data (Nutmeg)

A. Grenville Processing Station Samples
(Gren PS 1A - Gren PS 17).....36-55

B. Extended Cure Samples
(Test 1EC).....56-64

C. Plantation Field Samples

1. East P 2 -East P 9A.....65-74
2. West P 11 - West 14B.....75-83
3. Northwest P 10 - North P 18.....84-87
4. South P 15A - South P 16A.....88-91

D. Other Process Station Samples.....92-95

II. Fat (Ether Extractable) and Solids Data..... 96-103

III. Miscellaneous Mace Samples.....104-108

NUTMEG ANALYSIS

Sample Description	Volatile Oil Weight %	Average	Std Dev	Moisture Weight %	Average	Std Dev
Gren PS 1A	8.40	8.43	0.14	20.95	20.82	0.14
	8.31			20.67		
	8.59			20.83		
Gren PS 2A	7.89	7.90	0.04	25.02	25.01	0.16
	7.94			25.17		
	7.87			24.85		
Gren PS 3A	9.50	9.67	0.16	8.41	8.53	0.10
	9.71			8.59		
	9.81			8.59		
Gren PS 3B	7.24	7.33	0.08	9.52	10.18	0.59
	7.34			10.64		
	7.40			10.37		
Gren PS 4	7.93	7.83	0.26	7.20	7.29	0.23
	8.02			7.31		
				7.59		
	7.54			7.05		
Gren PS 5A	7.58	7.33	0.41	7.57	7.79	0.46
	7.56			7.49		
	6.86			8.32		
Gren PS 5B	8.67	8.75	0.08	8.09	8.18	0.19
	8.74			8.08		
	8.83			8.08		
				8.47		
Gren PS 6	7.43	8.00	0.50	8.07	7.90	0.15
	8.25			7.81		
	8.33			7.82		
Gren PS 7	8.69	8.28	0.38	9.19	9.24	0.08
	7.94			9.34		
	8.21			9.20		
Gren PS 8	8.34	8.33	0.03	8.19	8.48	0.30
	8.30			8.82		
	8.36			8.26		
				8.64		
Gren PS 9	9.26	9.50	0.31	8.77	9.00	0.29
	9.40			9.33		
	9.95			8.91		
	9.40					

NUTMEG ANALYSIS

Sample Description	Volatile Oil Weight %	Average	Std Dev	Moisture Weight %	Average	Std Dev
Gren PS 11	8.57	8.56	0.03	20.85	20.61	0.21
	8.52			20.50		
	8.58			20.47		
Gren PS 12	9.26	9.32	0.07	8.58	8.41	0.22
	9.30			8.16		
	9.40			8.48		
Gren PS 13	9.14	9.31	0.15	7.84	7.72	0.21
	9.36			7.84		
	9.43			7.47		
Gren PS 14	9.15	9.15	0.01	6.20	6.22	0.09
	9.14			6.32		
	9.16			6.14		
Gren PS 15	9.42	9.51	0.18	6.82	6.81	0.23
	9.39			6.89		
	9.72			7.04		
				6.49		
Gren PS 16	9.19	9.39	0.35	6.60	6.80	0.22
	9.80			7.11		
	9.19			6.81		
				6.70		
Gren PS 17	8.72	8.92	0.19	7.86	7.55	0.29
	8.95			7.49		
	9.10			7.29		

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: Gren PS 1 A
Aug 8, 1986
Drying Tray Loaded

DATE: 3-26-87

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	13.1644	1.30	9.86	0.8522	8.40
2	12.3090	1.20	9.75	0.8522	8.31
3	15.8733	1.60	10.08	0.8522	8.59
4					

AVE. 8.43 → 8.43
STD DEV. 0.14

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	2.0	1.7005	0.8502	0.8522
2	2.0	1.7082	0.8541	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	31.9869	6.70	20.95	1.0	20.95
2	27.5813	5.70	20.67	1.0	20.67
3	25.9511	5.40	20.83	1.0	20.83
4					

AVE. 20.82 → 20.82
ST. DEV. 0.14

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 29.68
ST. DEV.

AVE. SOLIDS 40.96 → 40.96
ST. DEV.

→ 29.68

Σ WEIGHT PERCENTS → 99.89
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: GREN P.S. 2A DATE: 3-29-87

AUG 8, 1986, DRYING TRAY LOADED FROM JULY 22, 1986 → AUG 8, 1986

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	13.5496	1.25	9.25	0.8525	7.89
2	~~[illegible]~~				
3	13.4303	1.25	9.31	0.8525	7.94
4	13.5424	1.25	9.23	0.8525	7.87

AVE. 7.90 → 7.90

STD DEV. 0.04

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	2.0	1.7030	0.8515	0.8525
2	2.0	1.7070	0.8535	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	25.1824	6.30	25.02	1.00	25.02
2	23.6369	5.95	25.17	↓	25.17
3	23.7417	5.90	24.85	↓	24.85
4					

AVE. 25.01 → 25.01

ST. DEV. 0.160

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE NO.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 28.34 → 28.34

ST. DEV.

AVE. SOLIDS 40.70 → 40.70

ST. DEV.

Σ WEIGHT PERCENTS → 101.95

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: GREN. PS 3A AUG 8, 1986 DATE: 3-30-87

DRYING TRAY LOADED, 7-19-86 → 7-22-86

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	13.3705	1.50	11.22	0.8464	9.50
2	—				
3	13.0807	1.50	11.47	0.8464	9.71
4	15.1157	1.75	11.58	0.8464	9.81

AVE. 9.67 → 9.67

STD DEV. 0.16

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)
1	2.0	1.6960	0.8480
2	2.0	1.6913	0.8457

AVE. 0.8464

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	26.7434	2.25	8.41	1.00	8.41
2	25.5641	2.20	8.59	↓	8.59
3	22.6475	1.95	8.59	↓	8.59
4					

AVE. 8.53 → 8.53

ST. DEV. 0.104

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE NO.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 33.85 → 33.85

ST. DEV.

AVE. SOLIDS 48.42 → 48.42

ST. DEV.

Σ WEIGHT PERCENTS → 100.17

(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: Gren P.S. 3 B
Aug 8, 1986 - Drying tray loaded
from 11/7/86 to 22/7/86

DATE: 10-13-86

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	12.3421	1.05	8.51	0.8510	7.24
2	11.6025	1.00	8.62	0.8510	7.34
3	13.2200	1.15	8.70	0.8510	7.40
4					

AVE. 7.33 → 7.33
STS DEV. 0.08

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)	AVE.
1	2.0	1.7059	0.8530	0.8510
2	2.0	1.6981	0.8490	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE No.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	24.6736	2.35	9.52	1.00	
2	24.4469	2.60	10.64	↓	
3	26.0293	2.70	10.37		
4	~~23.5829~~	~~1.90~~	~~8.06~~		

BOTB

AVE. 10.18 → 10.18
ST. DEV. 0.585

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT _____
ST. DEV. _____

AVE. SOLIDS _____ → _____
ST. DEV. _____

Σ WEIGHT PERCENTS → _____
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

CHRISTY THIS IS IN THE TOP OF THE BAG IN THE DOOR OF THE FRIDGE

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: GREN. P.S. 4 DATE: 10-11-86

DRYING TRAY LOADED JULY 10, 1986 - JULY 18, 1986

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	11.5860	1.10	9.49	.8361	7.93
2	13.0291	1.25	9.59	.8361	8.02
3	—				
4	12.7486	1.15	9.02	.8361	7.54

AVE. 7.83 → 7.83

STD DEV. 0.26

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	2.0	1.6632	0.8316	0.8361
2	2.0	1.6810	0.8405	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	26.2741	1.90	7.20	1.0	7.20
2	22.0395	1.60	7.21	1.0	7.21
3	25.0328	1.90	7.59	1.0	7.59
4	24.1084	1.70	7.05	1.0	7.05

AVE. 7.29 → 7.29

ST. DEV. 0.23

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE NO.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 33.19 → 33.19

ST. DEV.

AVE. SOLIDS 48.37 → 48.37

ST. DEV.

Σ WEIGHT PERCENTS → 96.68

(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: PS 5 DATE: 10-12-86
8 AUG 86, - HULLED
4 WEEK DRYING BEFORE FLOATATION SORTING

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL./WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	10.3183	0.90	8.72	0.8697	7.58
2	10.3631	0.90 mℓ	8.69	0.8697	7.56
3	8.8761	0.7 mℓ	7.89	0.8697	6.86
4					

AVE. 7.33 → 7.33
STD DEV. 0.410

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)	AVE.
1	1.7	1.4799	0.8705	0.8697
2	1.3	1.1294	0.8688	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	20.4786	1.55	7.57	1.00	7.57
2	19.3607	1.45	7.49	↓	7.49
3	18.0238	1.50	8.32		8.32
4					

AVE. 7.79 → 7.79
ST. DEV. 0.458

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 30.77 → 30.77
ST. DEV.

AVE. SOLIDS 50.76 → 50.76
ST. DEV.

Σ WEIGHT PERCENTS → 96.65
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: Gren PS5 B DATE: 10-6-86

Collected Aug. 8, 1986
Hulled today
~4 week drying before rotation sorting

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	10.8081	1.10	10.18	0.8516	8.67
2	11.5029	1.15	10.26	0.8516	8.74
3	11.0884	1.15	10.37	0.8516	8.83
4					

AVE. 8.75 → 8.75
STD DEV. 0.08

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	1.90	1.6075	0.8460	0.8516
2	1.75	1.5001	0.8572	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE No.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	32.1526	2.60	8.09	1.00	8.09
2	32.1925	2.60	8.08	1.00	8.08
3	27.8530	2.25	8.08	1.00	8.08
4	29.5311	2.50	8.47	1.00	8.47

AVE. 8.18 → 8.18
ST. DEV. 0.19

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT _____
ST. DEV. _____

AVE. SOLIDS _____ → _____
ST. DEV. _____

→ _____

Σ WEIGHT PERCENTS → _____
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: GREN. P.S. 6 8-29-86 (DEFECTS SOUND. BROKEN PIECES, AFTER HULLING)

DATE: ~~8-29~~ 10-2-86

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	14.3770	1.25 mℓ	8.69	0.8545	7.43 %
2	13.9966	1.25 mℓ	9.65	0.8545	8.25 %
3	13.8345	1.25 mℓ	9.76	0.8545	8.33 %
4	13.4564	Contaminated		0.8545	

AVE. 8.00 % → 8.00 %

STD DEV. 0.498

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)	AVE.
1	2.0	2.5716	0.8572	0.8545
2	2.0	2.5[illegible]	0.8517	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
~~1~~	~~[illegible]~~	~~2.40 mℓ~~	~~7.08~~	~~1.00~~	
2	27.2462	2.20 mℓ	8.07	1.00	8.07
3	30.1067	2.35 mℓ	7.81	1.00	7.81
4	29.4156	2.30 mℓ	7.82	1.00	7.82

AVE. 7.90 → 7.90

ST. DEV. 0.147

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE NO.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 36.09

ST. DEV.

AVE. SOLIDS 48.83 → 48.83

ST. DEV.

→ 36.09

Σ WEIGHT PERCENTS → 100.82

(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: GREN P.B. 7 DATE: 9-20-86
AUG. 29, 1986
DEFECTS AFTER FLOAT, DRIED

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	13.8039	1.40 ml	10.14	0.8574	8.69%
2	10.7939	1.00 ml	9.26	0.8574	7.94%
3	13.5702	1.30 ml	9.58	0.8574	8.21%
4				0.8574	

AVE. 8.28% → 8.28%
STD DEV. 0.380

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	3 ml	2.5720	0.8573	0.8574
2	3 ml.	2.5725	0.8575	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE No.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1					
2	32.6530	3.00 ml.	9.19	1.00	9.19
3	31.5940	2.95 ml	9.34	1.00	9.34
4	33.6938	3.10 ml	9.20	1.00	9.20

AVE. 9.24% → 9.24%
ST. DEV. 0.084

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 25.81 → 25.81
ST. DEV.

AVE. SOLIDS 54.35 → 54.35
ST. DEV.

Σ WEIGHT PERCENTS → 97.68
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: Gren P.S. 8 DATE: 10-3-86
Bad grinder oil extraction pieces that didn't float.
Collected 8-29-86

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	14.3628	1.40	9.75	0.8550	8.34
2	14.4225	1.40	9.71	0.8550	8.30
3	14.8239	1.45	9.78	0.8550	8.36
4					

AVE. 8.33 → 8.33
STD DEV. 0.0306

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	~~2~~ 3 ml	2.5676	.8559	0.8550
2	3 ml	2.5623	.8541	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE No.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	29.9203	2.45	8.19	1.00	8.19
2	27.1948	2.40	8.82	1.00	8.82
3	30.8882	2.55	8.26	1.00	8.26
4	26.0425	2.25	8.64	1.00	8.64

AVE. 8.48 → 8.48
ST. DEV. 0.30

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 34.36 → 34.36
ST. DEV.

AVE. SOLIDS 48.55 → 48.55
ST. DEV.

Σ WEIGHT PERCENTS → 99.72
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: GREN P2.4
Defect Mixture
Collected August 29, 1986

DATE: 9-25-86

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	12.0477	1.20	10.79	0.8581	9.26
2	10.9658	1.20	10.95	0.8581	9.40
3	9.0479	1.05	11.60	0.8581	9.95
4	12.7780	1.40	10.96	0.8581	9.40

AVE. 9.50 → 9.50
STD DEV. 0.31

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)	AVE.
1	5.0	4.5745	0.8596	0.8581
2	5.0	4.5641	0.8564	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	31.1094	2.70	8.77	1.00	8.77
2	30.0121	2.80	9.33	↓	9.33
3	27.6721	APPEARED COLUMN (2.85)?			
4	29.7576	2.65 mℓ	8.91		8.91

AVE. 9.00 → 9.00
ST. DEV. 0.291

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 32.74 → 32.74
ST. DEV.

AVE. SOLIDS 48.49 → 48.49
ST. DEV.

Σ WEIGHT PERCENTS → 99.73
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: Grch P.S. 11 Aug 29, 1986 Aug 8-15

DATE: 1-19-87

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	12.0080	1.20	9.99	0.8582	8.57
2					
3	12.0877	1.20	9.93	0.8582	8.52
4	11.4891	1.15	10.00	0.8582	8.58

AVE. 8.56 → 8.56

STD DEV. 0.03

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	2	1.7125	0.8562	0.8582
2	2	1.7205	0.8602	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	28.6449	5.95	20.77	1.00	20.77
2	25.3659	5.20	20.50	↓	20.50
3	24.9163	5.10	20.47	↓	20.47
4					

AVE. 20.60 → 20.60

ST. DEV. 0.155

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 22.75 → 22.75

ST. DEV.

AVE. SOLIDS 44.29 → 44.29

ST. DEV.

Σ WEIGHT PERCENTS → 101.20
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: GREN P.S. 12
AUG 29, 1986
AUG 2 → 8

DATE: ~~[illegible]~~ 1-16-87

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	13.8506	1.50	10.81	0.8567	9.26
2					
3	15.6669	1.70	10.85	0.8567	9.30
4	13.2195	1.45	10.97	0.8567	9.40

AVE. 9.32 → 9.32
STD DEV. 0.07

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)	AVE.
1	3.0	2.5669	0.8556	0.8567
2	3.0	2.5755	0.8578	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	25.0684	2.15	8.58	1.00	8.58
2	25.7300	2.10	8.16	↓	8.16
3	21.8248	1.85	8.48		8.48
4					

AVE. 8.41 → 8.41
ST. DEV. 0.22

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 32.71 → 32.71
ST. DEV.

AVE. SOLIDS 50.41 → 50.41
ST. DEV.

Σ WEIGHT PERCENTS → 100.85
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: Gren P.S. 13 Aug. 29, 1986 July 22 - Aug 2 DATE: 10-14-86

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	12.1887	1.30	10.67	.8570	9.14
2	12.2757	1.45	10.92	.8570	9.36
3	14.0868	1.55	11.00	.8570	9.43
4					

AVE. 9.31 → 9.31
STD DEV. 0.15

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)
1	3 mℓ	2.5684	.8561
2	3 mℓ	2.5737	.8579

AVE. .8570

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE No.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	28.0652	2.20	7.84	1.0	7.84
2	25.2132	1.55	6.15	1.0	[illegible]
3	28.6945	2.25	7.84	1.0	7.84
4	29.4438	2.20	7.47	1.0	7.47

may have lost some when moved flask

AVE. 7.72 → 7.72
ST. DEV. 0.21

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT _____
ST. DEV. _____

AVE. SOLIDS _____ → _____
ST. DEV. _____

→ _____

Σ WEIGHT PERCENTS → _____
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: Gren PS 14
Aug. 29, 1986
Jung 19-22

DATE: 10-22-86

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	12.6458	1.35	10.68	0.8572	9.15
2	13.1329	1.40	10.66	0.8572	9.14
3	14.0318	1.50	10.69	0.8572	9.16
4					

AVE. 9.15 → 9.15
STD DEV. 0.01

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	3.0	2.5744	0.8581	0.8582
2	3.0	2.5611	0.8564	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE No.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	33.8490	2.1	6.20	1.00	6.20
2	28.4615	1.6 ?	(5.62)	↓	(5.62)
3	23.7514	1.5	6.32	↓	6.32
4	22.8028	1.4	6.14	↓	6.14

LOST WATER DOWN TRAP

AVE. 6.22 → 6.22
ST. DEV. 0.09

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 38.26
ST. DEV.

AVE. SOLIDS 50.30 → 50.30
ST. DEV.

→ 38.26

Σ WEIGHT PERCENTS → 103.93
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: AUG 29, 1986
GREN P.S. 15
JULY 10 - 18

DATE: 10-25-81

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	12.7449	1.40	10.98	0.8578	9.42
2	12.7829	1.40	10.95	0.8578	9.39
3	10.5916	1.20	11.33	0.8578	9.72
4					

AVE. 9.51 → 9.51
STD DEV. 0.18

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)
1	3	2.5706	0.8561
2	3	2.5707	0.8569

AVE. 0.8578

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	27.1173	1.85	6.82	1.0	6.82
2	24.6881	1.70	6.89	1.0	6.89
3	31.2351	2.20	7.04	1.0	7.04
4	28.5067	1.85	6.49	1.0	6.49

AVE. 6.81 → 6.81
ST. DEV. 0.22

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 34.81 → 34.81
ST. DEV.

AVE. SOLIDS 50.06 → 50.06
ST. DEV.

Σ WEIGHT PERCENTS → 101.19
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: DATE: 10-23-86

GREN. P.S. 16

7-3 10

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	13.0691	1.40	10.71	.8585	9.19
2	15.3210	1.75	11.42	.8585	9.80
3	———			.8585	—
4	13.5479	1.45	10.70	.8585	9.19

AVE. 9.39 → 9.39%

STD DEV. 0.352

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)	AVE.
1	3	2.5770	0.8590	0.8585
2	3	2.5737	0.8579	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	31.8175	2.10	6.60	1.0	6.60
2	35.8423	2.55	7.11	1.0	7.11
3	31.5749	2.15	6.81	1.0	6.81
4	31.3297	2.10	6.70	1.0	6.70

AVE. 6.80 → 6.8%

ST. DEV. 0.22

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE NO.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT ———

ST. DEV. ———

AVE. SOLIDS ——— → ———

ST. DEV. ———

Σ WEIGHT PERCENTS ——— → ———

(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: GREN D.S. 17 FLOATED & DRIED 1 DAY

DATE: 1-17-87

VOLATILE OIL DETERMINATION (STEAM DISTILLATION) AUG 29, 1987

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	12.7840	1.30	10.17	0.8575	8.72
2					
3	11.4922	1.20	10.44	0.8575	8.95
4	14.1334	1.50	10.61	0.8575	9.10

AVE. 8.92 → 8.92

STD DEV. 0.19

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	3.0	2.5748	0.8583	0.8575
2	3.0	2.5699	0.8566	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	29.2466	2.30	7.86	1.00	7.86
2	26.6953	2.00	7.49	↓	7.49
3	27.4207	2.00	7.29	↓	7.29
4					

AVE. 7.55 → 7.55

ST. DEV. 0.289

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 29.50 → 29.50

ST. DEV.

AVE. SOLIDS 53.19 → 53.19

ST. DEV.

Σ WEIGHT PERCENTS → 99.16

(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

Sample Description	Volatile Oil Weight %	Volatile Oil Average	Volatile Oil Std Dev	Moisture Weight %	Moisture Average	Moisture Std Dev
Test 1	9.00 9.34 8.92	9.09	0.22	7.38 7.13 7.19 6.98	7.17	0.17
Test 1EC-A	8.45 8.39 8.61	8.48	0.11	7.03 6.80 6.91	6.91	0.12
Test 1EC-B	8.61 8.85 9.22	8.89	0.31	7.81 7.77 7.54	7.71	0.15
Test 1EC-D Product A	9.68 9.62 9.62	9.64	0.03	7.01 6.93 7.06	7.00	0.07
Test 1EC-D Product B	9.17 8.87	9.02	0.21	7.28 7.16 7.17 6.85	7.12	0.19
Test 1EC-D Product B Replicate	8.72 8.71 8.60	8.68	0.07			
Test 1EC-D Product C	10.16 10.08 10.13	10.12	0.04	7.05 7.14 7.25	7.15	0.10
Test 1EC-D Product D	8.87 9.01 9.02	8.97	0.08	7.09 6.49 7.23 6.72	6.88	0.34

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: DATE: 10-12-82

8 AUG 86

TEST No. 1 2 WEEKS → AUG 22

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	14.3350	1.50	10.46	0.8602	9.00
2	11.5086	1.25	10.86	0.8602	9.34
3	12.5343	1.30	10.37	0.8602	8.92
4					

AVE. 9.09 → 9.09

STD DEV. 0.22

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)
1	3.0	2.5817	0.8606
2	3.0	2.5797	0.8599

AVE. 0.8602

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	29.1301	2.15	7.38	1.00	7.38
2	26.6485	1.90	7.13	↓	7.13
3	29.2109	2.10	7.19		7.19
4	25.0645	1.75	6.98		6.98

AVE. 7.17 → 7.17

ST. DEV. 0.166

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT _____

ST. DEV. _____

AVE. SOLIDS _____ → _____

ST. DEV. _____

→ _____

Σ WEIGHT PERCENTS → _____

(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: TEST 1EC-A DATE: 10-14-86
TEST NO. 1 - EXTENDED CORE

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	12.2348	1.20	9.81	.8609	8.45
2	11.2821	1.10	9.75	.8609	8.39
3	12.5056	1.25	10.00	.8609	8.61
4					

AVE. 8.48 → 8.48%
STD DEV. 0.114

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)
1	3 mℓ	2.5826	0.8609
2			

AVE. 0.8609

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	30.5950	2.15	7.03	1.0	7.03
2	28.6957	1.95	6.80	1.0	6.80
3	———				
4	27.4906	1.90	6.91	1.0	6.91

AVE. 6.91 → 6.91
ST. DEV. 0.12

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE NO.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 34.45 → 34.45
ST. DEV.

AVE. SOLIDS 50.06 → 50.06
ST. DEV.

Σ WEIGHT PERCENTS → 99.90
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: TEST IEC-B ① DATE: 1-18-87
EXTENDED CURE 1-WEEK
AUG. 15, 1986

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	10.7701	1.10	10.03	0.858	8.61
2	—				
3	10.6700	1.10	10.31	0.858	8.85
4	13.0292	1.40	10.75	0.858	9.22

AVE. 8.89 → 8.89
STD DEV. 0.307

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)	AVE.
1	3	2.5880	0.8627	0.8576
2	2	1.7125	0.8525	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	28.8090	2.25	7.81	1.0	7.81
2	24.4604	1.90	7.77	1.0	7.77
3	27.1991	2.05	7.54	1.0	7.54
4					

AVE. 7.71 → 7.71
ST. DEV. 0.15

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 33.40 → 33.40
ST. DEV.

AVE. SOLIDS 50.95 → 50.95
ST. DEV.

Σ WEIGHT PERCENTS → 100.95
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: TEST IEC-D DATE: 1-27-87

3 WK EXTENDED CURE - FINAL PRODUCT A, AUG 27, 1986

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	12.0179	1.35	11.23	0.8620	9.68
2					
3	11.6537	1.30	11.16	0.8620	9.62
4	13.4412	1.50	11.16	0.8620	9.62

AVE. 9.64 → 9.64

STD DEV. 0.03

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	3.0	2.5823	0.8608	0.8620
2	3.0	2.5892	0.8631	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	31.3645	2.20	7.01	1.0	7.01
2	27.4114	1.90	6.93	1.0	6.93
3	26.9087	1.90	7.06	1.0	7.06
4					

AVE. 7.00 → 7.00

ST. DEV. 0.07

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 35.07

ST. DEV.

AVE. SOLIDS 51.22 → 51.22

ST. DEV.

→ 35.07

Σ WEIGHT PERCENTS → 102.93

(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: Test-IEC-D
3 week extended cure
Final Product B, Collected Aug. 29, 1986

DATE: 10-4-86

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	12.1932	1.30	10.66		
2	11.1499	1.15	10.31		
3	11.1050	(Boiled Dry)			
4					

AVE. 10.49 → 10.49
STD DEV. _____

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)
1			
2			

AVE. _____

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	31.6050	2.30	7.28	1.00	7.28
2	29.3236	2.10	7.16		7.16
3	29.9677	2.15	7.17		7.17
4	29.1914	2.00	6.85		6.85

AVE. 7.12 → 7.12
ST. DEV. 0.185

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 27.43 → 27.43
ST. DEV. _____

AVE. SOLIDS 51.96 → 51.96
ST. DEV. _____

Σ WEIGHT PERCENTS → 97.00
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: TEST IEC-D DATE: 10-6-86
3-WEEK EXTENDED CURE (REPLICATE)
FINAL PRODUCT B, COLLECTED AUG. 29, 1986

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	15.2080	1.55	10.19	0.8559	8.72
2	12.2842	1.25	10.18	0.8559	8.71
3	12.9384	1.30	10.05	0.8559	8.60
4					

AVE. 8.68 → 8.68
STD DEV. 0.07

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	2.0	2.5681	0.8560	0.8559
2	2.0	2.5670	0.8557	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1					
2					
3					
4					

AVE. ____ → ____
ST. DEV. ____

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE NO.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT ____
ST. DEV. ____

AVE. SOLIDS ____ → ____
ST. DEV. ____

→ ____

Σ WEIGHT PERCENTS → ____
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: TEST IEC-D DATE: 1-26-87

FINAL PRODUCT C - 3 WK. EXTENDED CURE, AUG. 29, 1986

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	10.5894	1.25	11.80	0.8612	10.16
2	—				
3	12.3920	1.45	11.70	0.8612	10.08
4	11.4750	1.35	11.76	0.8612	10.13

AVE. 10.12 → 10.12

STD DEV. 0.04

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)
1	2.0	1.7194	0.8597
2	2.0	1.7255	0.8628

AVE. 0.8612

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	28.3665	2.00	7.05	1.0	7.05
2	29.4323	2.10	7.14	1.0	7.14
3	29.6724	2.15	7.25	1.0	7.25
4					

AVE. 7.15 → 7.15

ST. DEV. 0.10

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 34.03 → 34.03

ST. DEV.

AVE. SOLIDS 52.21 → 52.21

ST. DEV.

Σ WEIGHT PERCENTS → 103.51

(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: Test-1EC-D
3 week extended cure
Final product D, Collected 8-29-86

DATE: 10-15-86

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	12.5834	1.30	10.33	0.8586	8.87
2	12.3909	1.30	10.49	0.8586	9.01
3	13.8007	1.45	10.51	0.8586	9.02
4					

AVE. 8.97 → 8.97
ST. DEV. 0.08

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	3.0	2.5762	0.8587	0.8586
2	3.0	2.5753	0.8584	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	29.6288	2.10	7.09	1.00	7.09
2	26.2025	1.70	6.49	↓	6.49
3	27.6596	2.00	7.23		7.23
4	28.2575	1.90	6.72		6.72

AVE. 6.88 → 6.88%
ST. DEV. 0.339

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT _____
ST. DEV. _____

AVE. SOLIDS _____ → _____
ST. DEV. _____

→ _____

Σ WEIGHT PERCENTS → _____
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

Sample Description	Volatile Oil Weight %	Volatile Oil Average	Volatile Oil Std Dev	Moisture Weight %	Moisture Average	Moisture Std Dev
East P 2	11.70	11.80	0.11	14.27	14.20	0.17
	11.78			14.00		
	11.91			14.32		
East P 3	6.91	6.85	0.13	12.16	12.00	0.35
	6.70			11.60		
	6.95			12.24		
East P 4	7.93	8.02	0.08	12.09	12.25	0.42
	8.07			11.93		
	8.07			12.72		
East P 5B	8.96	8.94	0.12	14.76	15.41	0.46
	8.81			15.48		
	9.05			16.01		
East P 6B	9.52	9.37	0.14	13.43	13.23	0.37
	9.36			12.80		
	9.24			13.46		
East P 7	10.56	10.50	0.07	15.12	14.92	0.20
	10.53			14.91		
	10.42			14.72		
East P 8A	7.33	7.36	0.12	29.04	29.46	0.39
	7.26			29.53		
	7.49			29.80		
East P 8B	7.70	7.73	0.17	21.46	21.38	0.29
	7.92			21.06		
	7.58			21.62		
East P 9A	7.15	7.03	0.13	34.07	34.19	0.24
	6.90			34.03		
	7.03			34.46		

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: DATE: 2-11-87

EAST P.2 / 8 AUG. 86
SOUTH (1000 ft) / 1000 ft. GRAND ETANG ST. MARGARET

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	8.7161	1.20	13.77	0.8498	11.70
2	—				
3	10.4622	1.45	13.86	0.8498	11.78
4	11.0591	1.55	14.02	0.8498	11.91

AVE. 11.80 → 11.80
STD DEV. 0.11

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	2.0	1.6959	0.8490	0.8498
2	2.0	1.7033	0.8516	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	21.0264	3.00	14.27	1.0	14.27
2	20.3631	2.85	14.00	1.0	14.00
3	23.3897	3.35	14.32	1.0	14.32
4					

AVE. 14.20 → 14.20
ST. DEV. 0.17

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 30.13 → 30.13
ST. DEV.

AVE. SOLIDS 47.04 → 47.04
ST. DEV.

Σ WEIGHT PERCENTS → 103.17
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: EAST P.3, SOUTH 250ft. DATE: 2-3-87
8 AUG 86, BIRCH GROVE PHILLIP

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	12.8597	1.00	7.78	0.8886	6.91
2	—				
3	10.5977	0.80	7.54	0.8886	6.70
4	11.5009	0.90	7.82	0.8886	6.95

AVE. 6.85 → 6.85
STD DEV. 0.13

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)	AVE.
1	2.0	1.7753	0.8877	0.8886
2	2.0	1.7788	0.8894	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	20.5615	2.50	12.16	1.00	12.16
2	18.5381	2.15	11.60	↓	11.60
3	21.6492	2.65	12.24	↓	12.24
4					

AVE. 12.00 → 12.00
ST. DEV. 0.349

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 32.37 → 32.37
ST. DEV.

AVE. SOLIDS 47.05 → 47.05
ST. DEV.

Σ WEIGHT PERCENTS → 98.27
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: DATE: 2-12 87

500 SD. BRANDON HALL
CECIL WELLS / EAST P.4 / SOUTH 500 SF

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	10.6672	1.00	9.38	0.8454	7.93
2	—				
3	10.4726	1.00	9.55	0.8454	8.07
4	11.0054	1.05	9.54	0.8454	8.07

AVE. 8.02 → 8.02
STD DEV. 0.08

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)	AVE.
1	2.0	1.6925	0.8464	0.8454
2	2.0	1.6890	0.8445	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	14.8917	1.80	12.09	1.00	12.09
2	13.8278	1.65	11.93		11.93
3	14.9412	1.90	12.72		12.72
4					

AVE. 12.25 → 12.25
ST. DEV. 0.48

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 33.67 → 33.67
ST. DEV.

AVE. SOLIDS 46.69 → 46.69
ST. DEV.

Σ WEIGHT PERCENTS → 100.67
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: DATE: 2-10-87

EAST P5 B, AUG 8, 1986 } MILABEAU
MID NORTH 400 ft. } C. FORRESTER 1000 ft?

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	9.9674	1.05	10.53	0.8510	8.96
2	—				
3	11.5951	1.20	10.35	0.8510	8.81
4	13.1725	1.40	10.63	0.8510	9.05

AVE. 8.94 → 8.94
STD DEV. 0.12

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	2.0	1.6987	0.8494	0.8510
2	2.0	1.7050	0.8525	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE No.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	22.6901	3.35	14.76	1.0	14.76
2	24.5409	3.80	15.48	1.0	15.48
3	19.9821	3.20	16.01	1.0	16.01
4					

AVE. 15.41 → 15.41
ST. DEV. 0.46

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT. (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 30.45
ST. DEV.

AVE. SOLIDS 49.00 → 49.00
ST. DEV.

→ 30.45

Σ WEIGHT PERCENTS → 103.80
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: East P.6 B — DATE: 2-8-87

Aug. 8, 1986 Mid. North 600 ft

Paraclete, R. Rush

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	12.4614	1.40	11.24	0.8469	9.52
2	—				
3	10.8626	1.20	11.05	0.8469	9.36
4	13.2953	1.45	10.91	0.8469	9.24

AVE. 9.37 → 9.37

STD DEV. 0.14

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)	AVE.
1	2.0	1.6954	0.8427	0.8469
2	2.0	1.7020	0.8510	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE No.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	24.9460	3.35	13.43	1.00	13.43
2	19.5286	2.50	12.80	↓	12.80
3	22.2871	3.00	13.46	↓	13.46
4					

AVE. 13.23 → 13.23

ST. DEV. 0.373

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 30.03 → 30.03

ST. DEV.

AVE. SOLIDS 48.58 → 48.58

ST. DEV.

Σ WEIGHT PERCENTS → 101.21

(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: EAST P.7 DATE: 2-9-87
MID. NORTH 1400 ft
BLAIRE, P. GARCIA 8 AUG. 86

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	12.0756	1.50	12.42	0.8506	10.56
2					
3	12.9262	1.60	12.38	0.8506	10.53
4	11.4257	1.40	12.25	0.8506	10.42

AVE. 10.50 → 10.50
STD DEV. 0.07

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	2.0	1.7095	0.8548	0.8506
2	2.0	1.6927	0.8464	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	19.8479	3.00	15.12	1.00	15.12
2	22.4714	3.35	14.91	↓	14.91
3	19.7008	2.90	14.72		14.72
4					

AVE. 14.92 → 14.92
ST. DEV. 0.200

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 30.19 → 30.19
ST. DEV.

AVE. SOLIDS 47.72 → 47.72
ST. DEV.

Σ WEIGHT PERCENTS → 103.33
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: East P, No. 8A DATE: 1-21-67
Aug. 15, 1968; Mt. St. Bernard
Blaise, St. Andrews, Salim.

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

Sample No.	Fresh wt. (g)	Oil recovered (ml)	Vol/wt. "percent"	Density (g ml⁻¹)	Wt. Percent
1	12.5618	0.90	8.52	0.8603	7.33
2	—				
3	12.4435	1.05	8.44	0.8603	7.26
4	12.0567	1.05	8.71	0.8603	7.49

Ave. 7.36 → 7.36
St. Dev. 0.12

OIL DENSITY DETERMINATION

Trial No.	Volume (ml)	Weight (g)	Density (g ml⁻¹)
1	2.0	1.7168	0.8584
2	2.0	1.7243	0.8622

Ave. 0.8603

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

Sample No.	Fresh wt. (g)	Water recovered (ml)	Vol/wt "percent"	Density (g ml⁻¹)	Wt. Percent
1	20.6580	6.00	29.04	1.00	29.04
2	22.6913	6.70	29.53		29.53
3	23.4879	7.00	29.80		29.80
4					

Ave. 29.46 → 29.46
St. Dev. 0.385

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

Sample No.	Fresh wt (g)	Fat recovered (g)	Fat wt. percent	Solids remaining (g)	Solids wt. percent
1					
2					
3					
4					

Ave. Fat 26.18
St. Dev.

Ave. Solids 38.39 → 38.39
St. Dev.

→ 26.18

Σ WEIGHT PERCENTS → 101.39
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: East P. 8 B
Aug 15, 1986
Mt. St. Bernard Elaize, St. Andrews Salim

DATE: 1-29-87

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	10.4714	0.95	9.07	0.8493	7.70
2					
3	9.6611	0.90	9.32	0.8493	7.92
4	9.5234	0.85	8.93	0.8493	7.58

AVE. 7.73 → 7.73
STD DEV. 0.17

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)	AVE.
1	2.0	1.6962	0.8481	0.8493
2	2.0	1.7010	0.8505	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	21.4393	4.60	21.46	1.0	21.46
2	28.0163	5.90	21.06	1.0	21.06
3	23.5841	5.10	21.62	1.0	21.62
4					

AVE. 21.38 → 21.38
ST. DEV. 0.29

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 26.66
ST. DEV.

AVE. SOLIDS 44.54 → 44.54
ST. DEV.

→ 26.66

Σ WEIGHT PERCENTS → 100.31
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: East P4A
Aug 7, 1986 MidNorth, 2000 ft.
Pyrenees, R. Jereen

DATE: 3-25-87

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	14.8385	1.25	8.42	0.8496	7.15
2	14.7881	1.20	8.12	0.8496	6.90
3	16.9184	1.40	8.28	0.8496	7.03
4					

AVE. 7.03 → 7.03
STD DEV. 0.13

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)	AVE.
1	2.0	1.6952	0.8476	0.8496
2	2.0	1.7030	0.8515	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	21.2785	7.25	34.07	1.0	34.07
2	21.3043	7.25	34.03	1.0	34.03
3	20.0219	6.90	34.46	1.0	34.46
4					

AVE. 34.19 → 34.19
ST. DEV. 0.24

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 23.94
ST. DEV.

AVE. SOLIDS 37.76 → 37.76
ST. DEV.

→ 23.94

Σ WEIGHT PERCENTS → 102.92
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

Sample Description	Volatile Oil Weight %	Average	Std Dev	Moisture Weight %	Average	Std Dev
West P 11	9.79	9.69	0.11	18.51	18.03	0.49
	9.57			17.53		
	9.72			18.04		
West P 11B	8.26	8.06	0.18	23.99	23.59	0.36
	7.92			23.48		
	7.99			23.30		
West P 12A	6.31	6.35	0.18	27.57	27.53	0.32
	6.20			27.83		
	6.55			27.19		
West P 12B	6.83	6.65	0.18	30.16	30.00	0.18
	6.48			30.02		
	6.64			29.81		
West P 13A	8.01	8.11	0.18	26.41	26.39	0.39
	8.01			26.77		
	8.32			26.00		
West P 13B	7.50	7.50	0.01	29.76	28.47	1.15
	7.51			28.13		
	7.49			27.53		
West P 14A	7.24	7.27	0.05	30.05		
	7.32					
	7.24					
West P 14B	7.24	7.36	0.11	26.04	26.15	0.20
	7.44			26.38		
	7.40			26.03		

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: WEST P. No. 11 DATE: 1-20-87
500 ft I. CHETRAM BROTHERS
ST JOHN AUG. 14, 1986

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	8.2805	0.95	11.47	0.8538	9.79
2	~~9.3642~~				
3	9.3642	1.05	11.21	0.8538	9.57
4	10.5395	1.20	11.39	0.8538	9.72

AVE. 9.69 → 9.69
STD DEV. 0.11

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)
1	2.0	1.7064	0.8532
2	2.0	1.7087	0.8544

AVE. 0.8538

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE No.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL./WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	13.7800	2.55	18.51	1.00	18.51
2	13.6899	2.40	17.53	↓	17.53
3	13.3053	2.40	18.04	↓	18.04
4					

AVE. 18.03 → 18.03
ST. DEV. 0.49

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2.					
3					
4					

AVE. FAT 32.62 → 32.62
ST. DEV.

AVE. SOLIDS → 40.06
ST. DEV.

Σ WEIGHT PERCENTS → 100.40
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: West P No. 11 B
Aug 14, 1986 11:30PM
500ft.
I. Chetram Brothers - St. John

DATE: 1-28-87

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	11.3105	1.10	9.73	0.8495	8.26
2					
3	12.8747	1.20	9.32	0.8495	7.92
4	13.8296	1.30	9.40	0.8495	7.99

AVE. 8.06 → 8.06
STD DEV. 0.18

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)	AVE.
1	2.0	1.7028	0.8514	0.8495
2	2.0	1.6950	0.8475	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	13.3294	3.20	23.99	1.0	23.99
2	15.3301	3.60	23.48	1.0	23.48
3	20.1685	4.70	23.30	1.0	23.30
4					

AVE. 23.59 → 23.59
ST. DEV. 0.36

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 31.00 → 31.00
ST. DEV.

AVE. SOLIDS 36.30 → 36.30
ST. DEV.

Σ WEIGHT PERCENTS → 98.95
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

77)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: WEST P No. 12 (a) DATE: 1-23-87
ST. MARY (BANNANA STA), 1000 FT. NOON

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	9.4307	0.70	7.42	0.8506	6.31
2	~~10.9997~~				
3	10.9797	0.80	7.29	0.8506	6.20
4	12.9867	1.00	7.70	0.8506	6.55

AVE. 6.35 → 6.35
STD DEV. 0.18

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)	AVE.
1	2	1.7032	0.8516	0.8506
2	2	1.6993	0.8497	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	25.9330	7.15	27.57	1.0	27.57
2	15.8125	4.40	27.83	1.0	27.83
3	18.5751	5.05	27.19	1.0	27.19
4					

AVE. 27.53 → 27.53
ST. DEV. 0.32

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 28.09
ST. DEV.

AVE. SOLIDS 38.50 → 38.50
ST. DEV.

→ 28.09

Σ WEIGHT PERCENTS → 100.47
(i.e. MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: WEST P. NO. 12B DATE: 2-2-87
AUG. 14, 1986 1000 ST. - NOON
ST. MARY (BANANA STATION)

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	10.5649	0.85	8.05	0.8488	6.83
2	11.1254	0.85	7.64	0.8486	6.48
3					
4	10.8767	0.85	7.82	0.8488	6.64

AVE. 6.65 → 6.65
S.-D DEV. 0.18

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	2.0	1.6948	0.8499	0.8488
2	2.0	1.6953	0.8477	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	19.2306	5.80	30.16	1.00	30.16
2	23.3173	7.00	30.02	↓	30.02
3	22.4747	6.70	29.81	↓	29.81
4					

AVE. 30.00 → 30.00
ST. DEV. 0.176

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE NO.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 25.76 → 25.76
ST. DEV.

AVE. SOLIDS 39.48 → 39.48
ST. DEV.

Σ WEIGHT PERCENTS → 101.89
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: West P No. 13 A
Aug 14, 1986
12:30 collected over last week, ~1500 ft

DATE: 1-24-87

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	13.0149	1.20	9.22	0.8685	8.01
2					
3	13.0139	1.20	9.22	0.8685	8.01
4	13.5704	1.30	9.58	0.8685	8.32

AVE. 8.11 → 8.11
STD DEV. 0.18

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)	AVE.
1	3	2.6117	0.8706	0.8685
2	2	1.7327	0.8664	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	16.2836	4.30	26.41	1.0	26.41
2	13.6325	3.65	26.77	1.0	26.77
3	20.0002	5.20	26.00	1.0	26.00
4					

AVE. 26.39 → 26.39
ST. DEV. 0.39

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 23.98 → 23.98
ST. DEV.

AVE. SOLIDS 40.94 → 40.94
ST. DEV.

Σ WEIGHT PERCENTS → 99.42
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: West P No. 13 B
Aug 14, 1986 Collected over past week at church
~1500 ft between St. Mary & Clozier

DATE: 2-1-87

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	12.6433	1.10	8.70	0.8624	7.50
2					
3	12.0561	1.05	8.71	0.8624	7.51
4	12.0908	1.05	8.68	0.8624	7.49

AVE. 7.50 → 7.50
STD DEV. 0.01

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)	AVE.
1	2.0	1.7224	0.8612	0.8624
2	2.0	1.7274	0.8637	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	16.8002	5.00	29.76	1.0	29.76
2	18.4840	5.20	28.13	1.0	28.13
3	21.0645	5.80	27.53	1.0	27.53
4					

AVE. 28.47 → 28.47
ST. DEV. 1.15

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 24.53 → 24.53
ST. DEV.

AVE. SOLIDS 40.47 → 40.47
ST. DEV.

Σ WEIGHT PERCENTS → 100.97
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: West P No. 14 A
Aug 14, 1986 - collected 13th
~800 ft, top, Clozier

DATE: 1-25-87

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	12.3316	1.05	8.51	0.8512	7.24
2					
3	12.2027	1.05	8.60	0.8512	7.32
4	13.5091	1.15	8.51	0.8512	7.24

AVE. 7.27 → 7.27
STD DEV. 0.05

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)	AVE.
1	2.0	1.6972	0.8486	0.8512
2	2.0	1.7076	0.8538	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	25.8446	X	"OVER THE TOP"		
2	26.9338	X			
3	24.9601	7.50			
4					

AVE. 30.05 → 30.05
ST. DEV.

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 24.23 → 24.23
ST. DEV.

AVE. SOLIDS 38.82 → 38.82
ST. DEV.

Σ WEIGHT PERCENTS → 100.87
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: West P No. 14 B
Aug 14, 1986
~1800ft Top of Clozier

DATE: 1-31-87

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	14.4333	1.25	8.66	0.8363	7.24
2					
3	13.4770	1.20	8.90	0.8363	7.44
4	12.9875	1.15	8.85	0.8363	7.40

AVE. 7.36 → 7.36
STD DEV. 0.11

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	2.0	1.6676	0.8338	0.8363
2	2.0	1.6778	0.8389	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	28.8054	7.50	26.04	1.0	26.04
2	28.6217	7.55	26.38	1.0	26.38
3	32.6572	8.50	26.03	1.0	26.03
4					

AVE. 26.15 → 26.15
ST. DEV. 0.20

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 26.69
ST. DEV.

AVE. SOLIDS 40.97 → 40.97
ST. DEV.

→ 26.69

Σ WEIGHT PERCENTS → 101.17
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

Sample Description	Volatile Oil Weight %	Average	Std Dev	Moisture Weight %	Average	Std Dev
orthwest P 10	9.02	9.08	0.07	14.14	14.33	0.39
	9.07			14.07		
	9.15			14.78		
orth P 17	3.88	3.90	0.04	28.99	28.93	0.17
	3.88			28.73		
	3.94			29.06		
orth P 18	5.93	5.87	0.06	18.11	18.11	0.31
	5.82			17.81		
	5.85			18.42		

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: NORTHWEST P. No. 10 DATE: 3-31-86
UNION, ST. MARKS
MAGGIE EDWARDS; 500 ft.

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mL)	VOL/WT. "PERCENT"	DENSITY (g mL⁻¹)	WT. PERCENT
1	11.3118	1.20	10.61	0.8505	9.02
2	—				
3	13.6057	1.45	10.66	0.8505	9.07
4	14.4039	1.55	10.76	0.8505	9.15

AVE. 9.08 → 9.08
STD DEV. 0.071

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mL)	WEIGHT (g)	DENSITY (g mL⁻¹)
1	2.0	1.6954	0.8477
2	2.0	1.7065	0.8532

AVE. 0.8505

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mL)	VOL/WT "PERCENT"	DENSITY (g mL⁻¹)	WT. PERCENT
1	26.1734	3.70	14.14	1.00	14.14
2	23.0982	3.25	14.07	↓	14.07
3	24.0117	3.55	14.78	↓	14.78
4					

AVE. 14.33 → 14.33
ST. DEV. 0.391

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 33.11 → 33.11
ST. DEV.

AVE. SOLIDS 44.60 → 44.60
ST. DEV.

Σ WEIGHT PERCENTS → 101.12
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: /NORTH P. 17/ - AUG 18, 1986 DATE: 10-28-86
COLLECTED SAT. 16TH, MT. ROSE ~ 500 ft
NORTHEAST SIDE

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	9.9806	0.45	4.51	0.86	3.88
2	8.8602	0.40	4.51	0.86	3.88
3	9.8219	0.45	4.58	0.86	3.94
4					

AVE. 3.90 → 3.90%
STD DEV. 0.035

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)
1			
2			

AVE. EST. 0.86

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	22.0783	6.40	28.99	1.0	28.99
2	18.6240	5.35	28.73	1.0	28.73
3	13.0764	3.80	29.06	1.0	29.06
4					

AVE. 28.93 → 28.93
ST. DEV. 0.17

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE NO.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 22.25 → 22.25
ST. DEV.

AVE. SOLIDS 46.41 → 46.41
ST. DEV.

Σ WEIGHT PERCENTS → 101.49
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: North P. 18, 1,100 ft.
Plaisance Estate
George Sedan
Aug. 18, 1986 1:30 PM

DATE: 10·26·86

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	6.5191	0.45	6.90	0.86	5.93
2	7.3829	0.50	6.77	0.86	5.82
3	7.3479	0.50	6.80	0.86	5.85
4					

AVE. 5.87 → 5.87
STD DEV. 0.057

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)
1			
2			

AVE. ESTIMATED 0.86

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	20.4322	3.70	18.11	1.00	18.11
2	19.9340	3.55	17.81	↓	17.81
3	18.7295	3.45	18.42	↓	18.42
4					

AVE. 18.11 → 18.11
ST. DEV. 0.305

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 30.62
ST. DEV.

AVE. SOLIDS 47.79 → 47.79
ST. DEV.

→ 30.62

Σ WEIGHT PERCENTS → 102.39
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

Sample Description	Volatile Oil Weight %	Average	Std Dev	Moisture Weight %	Average	Std Dev
South P 15A	3.70	3.81	0.16	9.88	10.22	0.36
	3.99			10.20		
	3.73			10.59		
South P 15B	9.61	9.44	0.18	11.27	11.35	0.11
	9.44			11.30		
	9.26			11.47		
South P 16A	6.89	6.67	0.19	19.46	18.62	0.76
	6.52			17.98		
	6.60			18.43		

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: South P No. 15A
Aug. 18, 1986, 4:45AM
Thebaide
St. Davids ~400 ft. Collected Friday

DATE: 1-15-87

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	11.6382	0.50	4.30	0.86	3.70
2	~~[illegible]~~				
3	9.6999	0.45	4.64	0.86	3.99
4	12.6899	0.55	4.34	0.86	3.73

AVE. 3.81 → 3.81
STD DEV. 0.16

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	ESTIMATED AVE.
1				0.86
2				

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE No.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	24.7978	2.45	9.88	1.00	9.88
2	26.9645	2.75	10.20	↓	10.20
3	25.4923	2.70	10.59	↓	10.59
4					

AVE. 10.22 → 10.22
ST. DEV. 0.36

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 31.57
ST. DEV.

AVE. SOLIDS 51.45 → 51.45
ST. DEV.

→ 31.57

Σ WEIGHT PERCENTS → 97.05
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: SOUTH P. NO. 15B DATE: 2-25-87
THEBAIDE / ST. DAVID'S ~ 400 ft.

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	10.8144	1.20	11.10	0.8659	9.61
2	10.5548	1.15	10.90	0.8659	9.44
3	9.8224	1.05	10.69	0.8659	9.26
4					

AVE. 9.44 → 9.44
STD DEV. 0.18

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)
1	2.0	1.7232	0.8616
2	2.0	1.7284	0.8642

AVE. 0.8659

MOISTURE DETERMINATION (TOLUENE DISTILLATION) 3-25-87

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	19.5189	2.20	11.27	1.0	11.27
2	21.6101	2.45	11.30	1.0	11.30
3	22.2316	2.55	11.47	1.0	11.47
4					

AVE. 11.35 → 11.35
ST. DEV. 0.11

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE NO.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 31.48 → 31.48
ST. DEV.

AVE. SOLIDS → 52.21
ST. DEV.

Σ WEIGHT PERCENTS → 104.48
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: South P # 16A
Aug 13, 1986, Mt. Agnes
1900 ft. Lenard Sargent

DATE: 3-27-87

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	16.2784	1.30	7.99	0.8619	6.89
2	15.1940	1.15	7.57	0.8619	6.52
3	15.6665	1.20	7.66	0.8619	6.60
4					

AVE. 6.67 → 6.67
STD DEV. 0.19

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	2.0	1.7246	0.8623	0.8619
2	2.0	1.7230	0.8615	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE No.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	20.5568	4.00	19.46	1.00	19.46
2	16.1306	2.90	17.98	1.00	17.98
3	20.3498	3.75	18.43	1.00	18.43
4					

AVE. 18.62 → 18.62
ST. DEV. 0.759

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 30.57
ST. DEV.

AVE. SOLIDS 44.82 → 44.82
ST. DEV.

→ 30.57

Σ WEIGHT PERCENTS → 100.68
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

Sample Description	Volatile Oil Weight %	Average	Std Dev	Moisture Weight %	Average	Std Dev
Gouyave Station	7.85	7.74	0.10	8.10	8.15	0.46
	7.69			7.71		
	7.67			8.63		
Mirabeau Ag Station Malcot Variety	7.48	7.43	0.06	21.46	21.66	0.16
	7.37			21.67		
	7.43			21.85		
				21.65		
Mirabeau Ag Station Malian Variety	7.26	7.27	0.23	21.76	21.55	0.30
	7.50			21.33		
	7.05					

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: GOUYAVE STATION WEST SIDE FINAL PRODUCT B

DATE: 2-4-87

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	11.4465	1.05	9.17	0.8556	7.85
2					
3	12.7948	1.15	8.99	0.8556	7.69
4	13.4005	1.20	8.96	0.8556	7.67

AVE. 7.74 → 7.74

STD DEV. 0.10

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	2.0	1.7085	0.8542	0.8556
2	2.0	1.7141	0.8570	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	32.7361	2.65	8.10	1.0	8.10
2	31.7825	2.45	7.71	1.0	7.71
3	32.4352	2.80	8.63	1.0	8.63
4					

AVE. 8.15 → 8.15

ST. DEV. 0.46

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 29.53

ST. DEV.

AVE. SOLIDS 55.21 → 55.21

ST. DEV.

→ 29.53

Σ WEIGHT PERCENTS → 100.63

(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: MIRASEAU AG STATION DATE: 10-18-86
EAST SIDE 400 ft 8-14-86
MALON VARIETY

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	10.8932	0.95	8.72	0.8574	7.48
2	13.9530	1.20	8.60	0.8574	7.37
3	14.4105	1.25	8.67	0.8574	7.43
4					

AVE. 7.43 → 7.43
STD DEV. 0.055

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	2 ml	1.7141	0.8571	0.8574
2	2 ml	1.7152	0.8576	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	26.5555	5.70	21.46	1.0	21.46
2	24.9172	5.40	21.67	1.0	21.67
3	26.0840	5.70	21.85	1.0	21.85
4	24.9387	5.40	21.65	1.0	21.65

AVE. 21.66 → 21.66
ST. DEV. 0.16

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT ____ AVE. SOLIDS ____ → ____
ST. DEV. ____ ST. DEV. ____

Σ WEIGHT PERCENTS → ____
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

NUTMEG ANALYSIS

SAMPLE DESCRIPTION: Mirabeau Aricultural Experiment Station - East Side 400 ft. Aug. 14, 1986, 1:00 P.M. Mallan variety

DATE: 10-24-86

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	10.6516	0.90	8.45	0.8586	7.26
2	10.3099	0.90	8.73	0.8586	7.50
3	12.1845	1.00	8.21	0.8586	7.05
4					

AVE. 7.27 → 7.27

STD DEV. 0.23

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	2.0	1.7186	0.8543	0.8586
2	2.0	1.7159	0.8580	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	25.3400	OVERFLOW OUT OF TRAP		1.00	—
2	22.7967				—
3	12.8656	2.80	21.76		21.76
4	12.6612	2.70	21.33		21.33

AVE. 21.55 → 21.55

ST. DEV. ____

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT ____ → ____

ST. DEV. ____

AVE. SOLIDS ____ → ____

ST. DEV. ____

Σ WEIGHT PERCENTS → ____
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

Ethgas, #1 - Plant Fat Analysis

(Nutrec)

Plant % Fat 5-21-87

	Lab #	sample wt.	Beaker #	Beaker tare	Beaker + sample	% DM	% fat		AV % fat
North P No 18A	1	2.5594	13	49.5979	50.3815	0.7836	30.62		
North P No. 15B	2	2.7038	6	65.0122	65.9234	0.8512	31.48		
Northwest P. No 10	3	2.5848	4	64.3183	65.1742	0.8559	33.11		
Test IEC-B	4	2.3917	12D	65.8450	66.5010	0.6560	27.43		
North P. No. 18B	5	3.1172	21	54.9150	55.8217	0.9067	29.09		
Test IEC-D	6	4.0183	113	55.9122	57.1819	1.2682	31.56		
East P. 9A	7	2.6727	24	64.3618	67.0017	0.6399	23.94		
Green PS 1A	8	3.1847	13A	68.6240	69.5693	0.9453	29.68		
East P. 3B	9	4.5811	19	66.8077	68.2906	1.4829	32.37		
Green PS 3A	10	3.6491	42	59.1760	60.4114	1.2354	33.85		
Green PS 2A	11	3.5545	1	58.1970	59.2013	1.0023	28.34		
South P No 16A	12	3.4630	20	68.5950	69.1538	1.0588	30.57		

ETHERS #1 | DATE 5-21-87

ETHER ATTACHMENT

SAMPLE	LAB #	THIMBLE TARE	THIMBLE + DRY SAMPLE	DRY SAMPLE WT.	FRESH SAMPLE WT.	% DRY SOLIDS
NORTH P. No 18A	1	1.7669	2.9901	1.2232	2.5594	47.79
SOUTH P. No 15B	2	1.3576	2.7693	1.4117	2.7038	52.21
NORTHWEST P. No. 10	3	1.5442	2.6970	1.1528	2.5848	44.60
TEST 1EC - B	4	1.4374	2.6801	1.2427	2.3717	51.96
NORTH P. No 18B	5	1.4604	2.9017	1.4413	3.1172	46.24
TEST 1EC - D	6	1.4515	3.5766	2.1251	4.0183	52.89
EAST P. 9A	7	2.0606	3.0697	1.0091	2.6727	37.76
GREN PS 1A	8	1.2342	3.0387	1.8045	3.1847	40.96
EAST P. 3B	9	1.8535	4.0088	2.1553	4.5811	47.05
GREN PS 3A	10	1.7237	3.4905	1.7668	3.6491	48.42
GREN PS 2A	11	1.9762	3.4230	1.4468	3.5545	40.70
SOUTH P. No 16A	12	2.2175	3.7696	1.5521	3.4630	44.82

Ethers #2 Plant Fat Analysis

(Nutrec) Plant % Fat 5-27-87

	Lab #	sample wt.	Beaker #	Beaker tare	Beaker + sample	Difference ~~% DM~~	% fat		AV % fat
West P. No 12B	1	2.6755	72	65.8946	66.5837	0.6891	25.76	✓	
West P. No. 15A	2	3.0155	45	53.1217	54.0738	0.9521	31.57	✓	
West P. No. 14B	3	2.7945	70	64.9027	65.6486	0.7459	26.69	✓	
North P. No. 17A	4	3.1065	73	67.7464	68.4375	0.6911	22.25	✓	
West P. No 13B	5	3.5236	11	64.1357	65.0000	0.8643	24.53	✓	
East P. 6B	6	3.3834	71	67.1080	68.1241	1.0161	30.03	✓	
East P 5B	7	2.6335	17A	51.8205	52.6225	0.8020	30.45	✓	
East P 4B	8	2.5057	49	56.7873	57.8310	0.8437	33.67	✓	
East P 7B	9	2.7573	13A	58.7919	59.6224	0.8305	30.19	✓	
East P 2B	10	2.9554	29	50.0431	50.9335	0.8904	30.13	✓	
East P. 8A	11	2.7663	41	57.4937	58.2180	0.7243	26.18	✓	
East P 8B	12	3.0658	37	67.8355	68.6529	0.8174	26.66	✓	

Ethels #2 - Nutmeg | Date 5-27-87

Ether Attachment

Sample	Lab #	Thimble Tare	Thimble + Dry Sample	Dry Sample Wt.	Fresh Sample Wt.	% Dry Solids
West P No 12B	1	1.7571	2.8133	1.0562	2.6755	39.48
South P No 15A	2	1.3555	2.9071	1.5516	3.0155	51.45
West P 14B	3	1.5382	2.6831	1.1449	2.7945	40.97
North P 17A	4	1.4297	2.8714	1.4417	3.1065	46.41
West P 13B	5	1.4926	2.9186	1.4260	3.5236	40.47
East P 6B	6	1.4643	3.1081	1.6438	3.3854	48.58
East P 5B	7	2.0617	3.3521	1.2904	2.6335	49.00
East P 4B	8	1.7314	2.9012	1.1698	2.5057	46.69
East P 7B	9	1.8551	3.1681	1.3130	2.7513	47.72
East P 2B	10	1.7320	3.1222	1.3902	2.9554	47.04
East P 8A	11	1.7776	3.0397	1.0621	2.7663	38.39
East P 8B	12	2.2320	3.5974	1.3654	3.0658	44.54

Ethers, #3, Plant Fat Analysis

(Nutmeg)

Plant % Fat 5-28-87

	Lab #	sample wt.	Beaker #	Beaker tare	Beaker + sample	FAT ~~% DM~~	% fat		AV % fat		
Gren PS 9	1	2.5781	8A	53.4069	54.2510	0.8441	32.74				
Gren PS 6	2	3.3159	7	63.3019	64.4985	1.1966	36.09				
Gren PS 11	3	2.8956	2A	56.2586	57.0621	0.8035	27.75				
Gouyave St. Final (B)	4	3.3071	17	69.8383	70.8150	0.9767	29.53				
Gren PS 14	5	2.7665	22	69.5003	70.5033	1.0030	36.26				
Gren PS 12	6	2.7486	8	69.4440	70.3430	0.8990	32.71				
Gren PS 17	7	2.8476	10	68.2181	69.0582	0.8401	29.50				
Gren PS 7	8	2.6053	38	55.9992	56.6715	0.6723	25.81				
Gren PS 5A	9	2.7914	16	69.1560	70.0150	0.8590	30.77				
Gren PS 4A	10	2.4358	33	59.7215	60.8618	1.1403	33.19				
Gren PS 15	11	2.3468	5	63.3770	64.1940	0.8170	34.81				
Gren PS 8	12	2.9158	1	68.8962	69.8980	1.0018	34.36				

Ethers #3 | Date 5-28-87

Ether Attachment

Sample	Lab #	Thimble Tare	Thimble + Dry Sample	Dry Sample Wt.	Fresh Sample Wt.	% Dry Solids
Gren PS 9	1	2.0026	3.2527	1.2501	2.5781	48.49
Gren PS 6	2	2.0895	3.7086	1.6191	3.3159	48.83
Gren PS 11	3	1.9504	3.2329	1.2825	2.8956	44.29
Gouyave St Final (B)	4	1.6894	3.5153	1.8259	3.3071	55.21
Gren PS 14	5	1.6948	3.0864	1.3916	2.7665	50.30
Gren PS 12	6	1.5044	2.8899	1.3855	2.7486	50.41
Gren PS 17	7	1.7426	3.2573	1.5147	2.8476	53.19
Gren PS 7	8	2.0662	3.4823	1.4161	2.6053	54.35
Gren PS 5A	9	1.6047	3.0216	1.4169	2.7914	50.76
Gren PS 4A	10	1.5184	3.1804	1.6620	3.4358	48.37
Gren PS 15	11	1.9231	3.0978	1.1747	2.3468	50.06
Gren PS 8	12	1.6070	3.0226	1.4156	2.9158	48.55

Ethers, #4, Plant Fat Analysis

(Nutmeg) Plant % Fat 6-1-87

	Lab #	sample wt.	Beaker #	Beaker tare	Beaker + sample	% DM	% fat		AV % fat		
East P 20 Marion Mace	1	3.7936	37	58.2324	58.6402	0.4078	10.75				
East P 19 Manicot Mace	2	2.5548	9	69.3125	69.5871	0.2746	10.75				
West P 13 A	3	2.7978	7A	54.0442	54.7152	0.6710	23.98				
Gouverne St. (A)	4	2.7171	3	69.3269	70.1586	0.8317	30.61				
West P. 11 B	5	3.2885	2	68.4380	69.4575	1.0195	31.00				
Test 1EC-D	Fresh (A) 6	3.5834	2B	59.2874	60.5441	1.2567	35.07				
Test 1EC-D	Fresh (C) 7	3.2632	41	58.2550	59.3723	1.1173	34.03				
West P 14A	8	2.5912	51	58.5667	59.2074	0.6407	24.73				
West P 11	9	2.4588	15	68.9840	69.7860	0.8020	32.62				
West P 12A	10	3.8000	52	57.0273	58.0948	1.0675	28.09				
Test 1EC-A	Steer. Snow 11	3.8536	58	56.9228	58.2505	1.3277	34.45				
Test 1EC-B	12	3.0860	21	65.1996	66.2303	1.0307	33.40				

Ethers, #4 | Date 6-1-87

Ether Attachment

Sample	Lab #	Thimble Tare	Thimble + Dry Sample	Dry Sample Wt.	Fresh Sample Wt.	% Dry Solids
East P. 20 Malian Mace	1	1.7551	4.7247	2.9696	3.7936	78.35
East P 19 Malicot Mace	2	1.3465	3.4007	2.0571	2.5548	80.52
West P 13A	3	1.5281	2.6734	1.1453	2.7978	40.94
Gunyane St. Final (A)	4	1.4202	2.9417	1.5215	2.7171	56.00
West P 11B	5	1.4730	2.6666	1.1936	3.2885	36.30
Test 2EC-D Final (A)	6	1.4688	3.3043	1.8355	3.5834	51.22
Test 2EC-D Final (C)	7	2.0470	3.7613	1.7143	3.2832	52.21
West P 14A	8	1.7299	2.7357	1.0058	2.5912	38.82
West P 11	9	1.8413	2.8263	0.9850	2.4588	40.06
West P 12A	10	1.7190	3.1820	1.4630	3.8000	38.50
Test 2EC-A Start Sample	11	1.9608	3.8899	1.9291	3.8536	50.06
Test 2EC-B	12	2.2029	3.7753	1.5724	3.0860	50.95

~~NUTMEG~~ MACE ANALYSIS

SAMPLE DESCRIPTION: East P. 19 DATE: 5-26-87
Mizabeak Ag Station 400 ft.
Malicot Variety Mace

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRES. WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1					
2					
3	10.7689	0.60	5.57	0.872	4.86
4					

AVE. _____ → 4.86
STD DEV. _____

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)
1			
2			

AVE. _____

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1					
2	12.0705	0.60	4.97 %	1.00	4.97
3					
4					

AVE. 4.97 → 4.97
ST. DEV. _____

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 10.75 → 10.75
ST. DEV. _____

AVE. SOLIDS 80.52 → 80.52
ST. DEV. _____

Σ WEIGHT PERCENTS → 101.10
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

MACE

~~Nutmeg~~ ANALYSIS

SAMPLE DESCRIPTION: EAST P. 20 DATE: 5-26-87

MIRABEAU AG STATION NOD 88.

MALIAN VARIETY MACE

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (mℓ)	VOL/WT. "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	13.3087	1.55	11.65	0.872	10.16
2					
3					
4					

AVE. _____ → 10.16

STD DEV. _____

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (mℓ)	WEIGHT (g)	DENSITY (g mℓ⁻¹)
1	2	1.7419	0.8710
2	2	1.7450	0.8725

AVE. 0.8717

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE NO.	FRESH WT. (g)	WATER RECOVERED (mℓ)	VOL/WT "PERCENT"	DENSITY (g mℓ⁻¹)	WT. PERCENT
1	10.7026	0.60	5.61	1.00	5.61
2					
3					
4					

AVE. 5.61 % → 5.61%

ST. DEV. _____

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT 10.75

ST. DEV. _____

AVE. SOLIDS 78.35 → 78.35

ST. DEV. _____

→ 10.75

Σ WEIGHT PERCENTS → 104.57

(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

~~Nutmeg~~ Mace Analysis

Sample Description: Date: 5-27-87

Gren P.S. 20
- Mace No. 2 Yellow

Volatile Oil Determination (Steam Distillation)

Sample No.	Fresh Wt. (g)	Oil Recovered (ml)	Vol/Wt. "Percent"	Density (g ml⁻¹)	Wt. Percent
1					
2					
3	20.5933	2.70	13.11	0.869	11.39
4					

Ave. 11.39 → 11.39%
St. Dev.

Oil Density Determination

Trial No.	Volume (ml)	Weight (g)	Density (g ml⁻¹)
1			
2			

Ave.

Moisture Determination (Toluene Distillation)

Sample No.	Fresh Wt. (g)	Water Recovered (ml)	Vol/Wt "Percent"	Density (g ml⁻¹)	Wt. Percent
1					
2	19.8253	1.20	6.05	1.00	6.05
3					
4					

Ave. 6.05 → 6.05%
St. Dev.

Fat & Inert Solids Determinations (Ether Extraction)

Sample No.	Fresh Wt (g)	Fat Recovered (g)	Fat Wt. Percent	Solids Remaining (g)	Solids Wt. Percent
1					
2					
3					
4					

Ave. Fat
St. Dev.

Ave. Solids →
St. Dev.

Σ Weight Percents →
(Volatile oil, Moisture, Fat & Inert solids)

~~Nutmeg~~ Mace Analysis

Sample Description: Gren P.S. 18 **Date:** 5-27-87
Mace No. 1 Red

Volatile Oil Determination (Steam Distillation)

Sample No.	Fresh Wt. (g)	Oil Recovered (mℓ)	Vol/Wt. "Percent"	Density (g mℓ⁻¹)	Wt. Percent
1	15.3335	1.75	11.41	0.869	9.92
2					
3					
4					

Ave. 9.92% → 9.92%
Std Dev. _____

Oil Density Determination

Trial No.	Volume (mℓ)	Weight (g)	Density (g mℓ⁻¹)
1	3	2.6207	0.8736
2	2	1.7246	0.8623

Ave. 0.869

Moisture Determination (Toluene Distillation)

Sample No.	Fresh Wt. (g)	Water Recovered (mℓ)	Vol/Wt "Percent"	Density (g mℓ⁻¹)	Wt. Percent
1	14.6225	0.90	6.15	1.00	6.15
2					
3					
4					

Ave. 6.15 → 6.15%
St. Dev. _____

Fat & Inert Solids Determinations (Ether Extraction).

Sample No.	Fresh Wt. (g)	Fat Recovered (g)	Fat Wt. Percent	Solids Remaining (g)	Solids Wt. Percent
1					
2.					
3					
4					

Ave. Fat _____
St. Dev. _____

Ave. Solids _____ → _____
St. Dev. _____

→ _____

Σ Weight Percents → _____
(Volatile oil, Moisture, Fat & Inert solids)

MACE ~~NUTMEG~~ ANALYSIS

SAMPLE DESCRIPTION: GREN PS. No. 19 DATE: 5-21-87
MACE, YELLOW, No. 1 - MONTA 5-21-86

VOLATILE OIL DETERMINATION (STEAM DISTILLATION)

SAMPLE No.	FRESH WT. (g)	OIL RECOVERED (ml)	VOL/WT. "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	7.6100	1.00	13.14	0.869	11.42
2	—				
3	8.2622	1.00	12.10	0.869	10.52
4	10.0178	1.15	11.48	0.869	9.98

AVE. 10.64 → 10.64
STD DEV. 0.727

OIL DENSITY DETERMINATION

TRIAL NO.	VOLUME (ml)	WEIGHT (g)	DENSITY (g ml⁻¹)	AVE.
1	2	1.7390	0.86950	0.869
2	2	1.7371	0.86855	

MOISTURE DETERMINATION (TOLUENE DISTILLATION)

SAMPLE No.	FRESH WT. (g)	WATER RECOVERED (ml)	VOL/WT "PERCENT"	DENSITY (g ml⁻¹)	WT. PERCENT
1	11.3909	0.65	5.71	1.00	5.71
2	11.2400	0.60	5.34	↓	5.34
3	9.8579	0.55	5.58	↓	5.58
4					

AVE. 5.54 → 5.54
ST. DEV. 0.184

FAT & INERT SOLIDS DETERMINATIONS (ETHER EXTRACTION)

SAMPLE No.	FRESH WT (g)	FAT RECOVERED (g)	FAT WT. PERCENT	SOLIDS REMAINING (g)	SOLIDS WT. PERCENT
1					
2					
3					
4					

AVE. FAT _____
ST. DEV. _____

AVE. SOLIDS _____ → _____
ST. DEV. _____

→ _____

Σ WEIGHT PERCENTS → _____
(VOLATILE OIL, MOISTURE, FAT & INERT SOLIDS)

Appendix B

Field Notes

WEST SIDE SAMPLES - AUG. 14, 1986 THURSDAY

GOUYAVE PROCESSING STATION 10:45 AM
FINAL PRODUCT

WEST P. NO. 11 500 FT 11:30 AM
BROTHERS ST. JOHN ⇒ I. CHETRAM

WEST P. NO. 12 1,000 FT COLLECTED IN MORNING
ST. MARY + RIGHT (SOUTH) BANANA STATION

WEST P. NO. 13 1,500 FT COLLECTED OVER LAST WEEK
CATHOLIC CHURCH BETWEEN ST. MARY AND CLOZIER

WEST P. NO. 14 1,800 FT COLLECTED WED AUG. 13
TOP CLOZIER by BANANA STATION

MIRABEAU AGRICULTURAL STATION EAST SIDE ~ 400 FT 1:00 PM
(19) MALICOT VARIETY NUTMEG, MACE, + PERICARP "POD" SAMPLES

(20) MALIAN VARIETY NUTMEG, MACE, + PERICARP "POD" SAMPLES

SOUTH P. NO. 15 400 FT COLLECTED FRI AUG 15
THEBAIDE / ST. DAVID'S

SOUTH P. NO. 16 1,400 FT. COLLECTED OVER LAST SEVERAL DAYS
MT. AGNES ⇒ LENNARD SARGENT

NORTH P. NO. 17 500 FT COLLECTED SAT. AUG. 16
MT. ROSE NORTHEAST SIDE

NORTH P. NO. 18 1,100 FT 1:30 pm (+ MACE)
PLAISANCE ESTATE ⇒ GEORGE SODAH

PLANTATION FIELD SAMPLES — EAST SIDE

AUGUST 8, 1986 10:00 AM → 3:30 PM

SAMPLE NO.	LOCATION
EAST P. 1	SOUTH ~1,500 FT (+ MACE SAMPLE) GRAND ETANG = WAITE = 10:00 AM
EAST P. 2	SOUTH ~1,000 FT GRAND ETANG ~ ST. MARGARET = 10:30 AM
EAST P. 3	SOUTH 750 FT (+ MACE SAMPLE) BIRCH GROVE = PHILLIP = 11:00 AM
EAST P. 4	SOUTH 500 FT (+ MACE SAMPLE) BRANDON HALL/LA DIGUE = CECIL WELLS 11:30 A
EAST P. 5	MID NORTH 400 FT MIRABEAU = C. FORRESTER ? 1,000 FT
EAST P. 6	MID NORTH 600 FT. PARACLETE = R. RUSH = 2:30 PM
EAST P. 7	MID NORTH 1,400 FT BLAIZE = P. GARCIA = 3:00 PM ? 2000 F
EAST P. 8	[redacted] NORTH 2,000 FT MT. ST. CATHERINE = N. SALIM
EAST P. 9	MID NORTH 2,000 FT PYRÉNÉES = RITHO JEREEN 7/8 AUG/86 └ MAP SHOWS 1,000 FT
NORTHWEST P. 10	FAR NORTH WEST 500 FT COLLECTED UNION = MAGGIE EDWARDS FRI AUG 22

PERICARP "POD" SAMPLES

DRYING TRAYS STARTED FRIDAY AUG. 15, 1986 10:00 AM

MALICOT	SAMPLE #1		SAMPLE #2	
	1993.1 gm	START	2007.0 gm	START
	358.6 gm	TARE	362.9 gm	TARE
	1,634.5 gm	SAMPLE	1,644.1 gm	SAMPLE
	528.8 gm	FINISH	534.7 gm	FINISH
	358.0 gm	TARE	362.6 gm	TARE
	170.8 gm	SAMPLE	172.1 gm.	
	10.45%	SOLIDS	10.47	
	89.55%	MOISTURE	89.53	

MALIAN	SAMPLE #1		SAMPLE #2	
	1938.0 gm	START	1644.7 gm	START
	359.4 gm	TARE	376.0 gm	TARE
	1,578.6 gm	SAMPLE	1,268.7 gm	SAMPLE
	509.1 gm	FINISH	510.3 gm	FINISH
	359.2 gm	TARE	375.6 gm	TARE
	149.9		134.7	
	9.50		10.62	
	90.50%		89.38%	

GRENVILLE PROCESSING STATION

AUGUST 8, 1986 4:00 PM

SAMPLE NO.	STAGE OF PROCESSING
GREN. P.S. 1	0 to 5 DAY DRYING ⇒ 0 WEEK DRYING TRAY LOADED FROM AUG 3 → 8, 1986
GREN. P.S. 2	6 to 11 DAY DRYING ⇒ 1 WEEK DRYING TRAY LOADED FROM JULY 22 → AUG 2, 198
GREN. P.S. 3	20 to 12 DAY DRYING ⇒ 2 WEEK DRYING TRAY LOADED FROM JULY 19 → 22, 198
GREN. P.S. 4	21 to 29 DAY DRYING ⇒ 3 WEEK DRYING TRAY LOADED FROM JULY 10 → 18, 198
GREN. P.S. 5	HULLED ON AUG. 8, 1986 ⇒ ~4 WEEK DRY BEFORE FLOATATION SORTING

[redacted] TEST 1EC - A EXTENDED CURE TEST No. 1
STARTING SAMPLE = BAGGED & READY TO BE HULLED NEXT WORKING DAY = AUG. 1
THIS SAMPLE WOULD ALSO BE INBETWEEN GREN. P.S. 4 AND 5 IN PROCESS SEQUENCE

TEST 1EC - B 1 WEEK EXTENDED CURE AUG 15TH

TEST 1EC - C 2 WEEK EXTENDED CURE AUG 22ND

NUTMEG GREEN $1.00 lb
PRICE TO FARMER DRY $1.38
GRIND 46¢
MACE 3.62
2 2.32

GRENVILLE PROCESS SAMPLES

(1) TEST - 1 EC [D] 3 WEEK EXTENDED CURE (FINAL PRODUCT)

STAGE OF PROCESSING

(10) (2) Aug 25-29 0-5 DAY DRYING = 0 WEEK
(3) Aug 16 - 23 1 WEEK
(11) (4) Aug 8 → 15 2 WEEK
(12) (5) (1) Aug 3 → 8 3 WEEK
(13) (6) (2) July 22 - Aug 2 4 WEEK
(14) (7) (3) July 19 - 22 5 WEEK
(15) (8) (4) July 10 - 18 6 WEEK
(16) (9) (5) 3-10 HULLED ON AUG 29TH BEFORE FLOATATION
FLOATED & DRAINED
1 DAY DRIED = FINAL PRODUCT

(9) DEFECTS : FINAL MIXTURE
(7) WHOLE FLOATERS (MAJOR BULK of MIXTURE)
(6) "SOUND" BROKEN PIECES or BADLY BRUISED or SPLIT
(8) GRINDER BAD PIECES

DEFECTS = 30 to 40%
AVERAGE of TOTAL AMOUNT PROCESSED
ABOUT 2% of PRODUCTION IS SIZED SORTED
65 SEEDS/lb
80 "
110 "

18 MACE : RED No. 1
19 YELLOW No. 1
20 YELLOW No. 2

MIRABEAU AG. STATION ~3 lbs GRAY
MALIAN NUTMEG
MALICOT NUTMEG

SLEEPER NEW PHONE
4187 or 4188
at HOTEL CALIFORNIA

AUG 8 FRIDAY SAMPLES — BAGGED ON SAT. 9TH (SHIPPED 13TH A)
B OPENED & AIR DRY ON SAT 16TH
BAGGED THUR 28TH = 12 DAYS DRYING

AUG 14 SAMPLES THURS — AIR DRIED THUR 14TH PM
5 DAYS = TUE 6PM BAGGED

AUG 15 SAMPLE FRI — AIR DRIED FRI 15TH PM
4 DAYS = TUE 6PM BAGGED A ONLY
7 DAYS = FRI 6 PM BAGGED B

AUG 18 SAMPLES MON — AIR DRIED MON 18TH PM
1 DAY = TUE 6 PM BAGGED A ONLY
THUR 2 PM BAGGED AUG 28TH

AUG 22 SAMPLED FRI — AIR DRIED FRI 22ND PM
6 DAYS = THUR 28TH 2 PM BAGGED SINGLE BAG

APPENDIX C

DAN-1323-B-01-6017-00
Delivery Order 1

SCOPE OF WORK

Task 1 - Chemical and Physical Analysis

Chemical analysis of volatile and non-volatile oils/fat percentages and moisture content from different lots of nutmeg, by each GNA collection station throughout the island.

Spice firms require minimum percentages of 6.5% - 7.5% of volatile oils in nutmeg. They also desire a product less than 25% non-volatile oils/fat content. These percentages have to be consistent from lot to lot in order to meet U.S. spice industry's requirements. The Chemical Engineering Dept. of the University of Idaho is prepared to do this analysis, initially in order to characterize Grenadian nutmeg.

The following tests will be done:

1. Quantify the range of total oil content in samples of nutmeg. Document the fat content difference between Grenadian and Indonesian products to provide marketing assistance data.

2. Compare the chemical composition differences in the essential oils which flavor, and hence, determine the quality and marketability of Grenadian and Indonesian nutmegs.

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