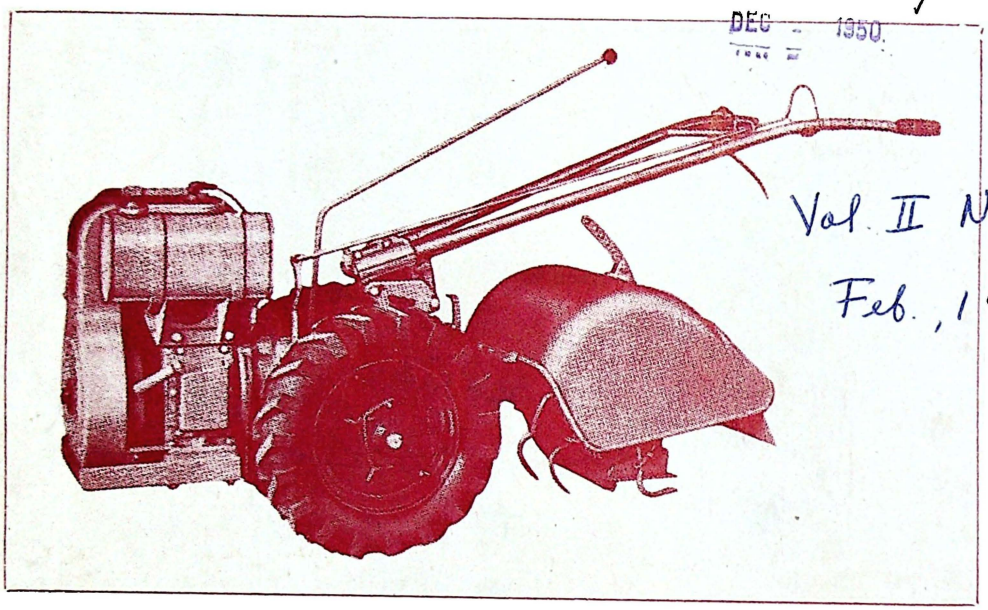
FARMING AND COOPERATIVES

OFFICIAL ORGAN OF THE PHILIPPINE FARMERS

Vol. II No. 2
Feb., 1947



THE "ARIEN'S" ROTOTILLER MODEL B

ROTOTILLER VS. CARABAO

(Article on page 12)

THE MONTHLY AGRICULTURAL JOURNAL THAT REACHES EVERY HOME WITH A MISSION OF SERVICE

"LET US UNDERTAKE A TICK ERADICATION CAMPAIGN ON A NATIONWIDE SCALE NOW THAT OUR STOCK POPULATION IS AT ITS LOWEST."

—*VICENTE ARANETA*

FEBRUARY, 1947—VOL. II, No. 2 ₱0.60 PER COPY

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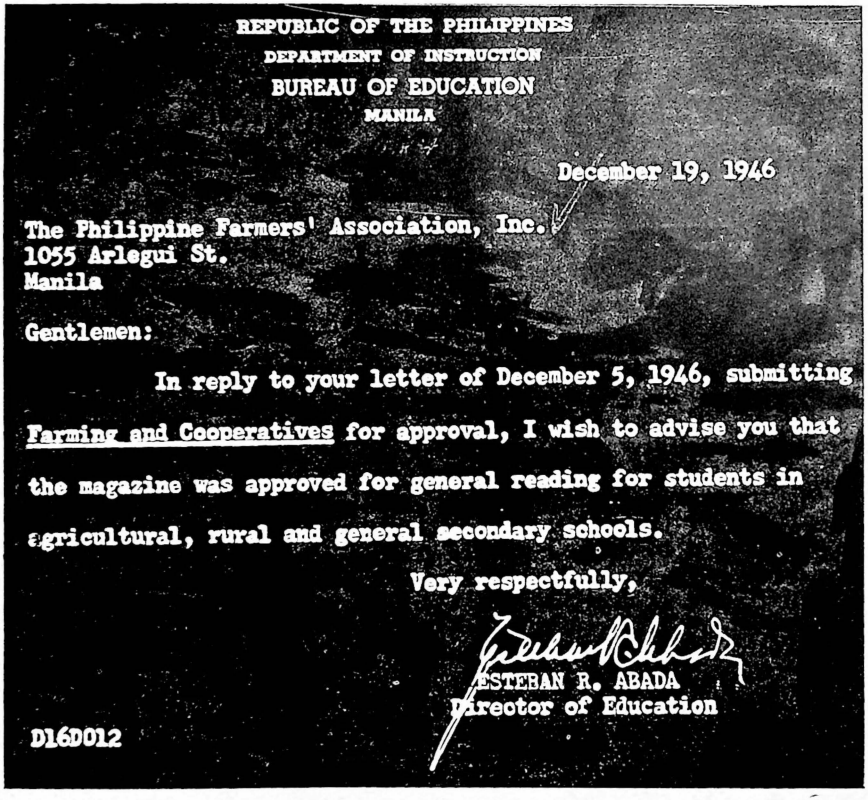

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF INSTRUCTION
BUREAU OF EDUCATION
MANILA

December 19, 1946

The Philippine Farmers' Association, Inc.
1055 Arlegui St.
Manila

Gentlemen:

In reply to your letter of December 5, 1946, submitting Farming and Cooperatives for approval, I wish to advise you that the magazine was approved for general reading for students in agricultural, rural and general secondary schools.

Very respectfully,

ESTEBAN R. ABADA
Director of Education

D16D012

OF SERVICE

FARMING AND COOPERATIVES

Vol. II—No. 2 Feb., 1947

ARTICLES

DEPARTMENTS

AVERAGE MONTHLY RAINFALL AND RAINY DAYS FOR THE MONTH OF FEBRUARY IN DIFFERENT TYPES

First Type:—Two pronounced seasons; Day in Winter and Spring, Wet in Summer and Autumn.

STATION	*Length of Record.*	*Rainfall Average Monthly*	*Average Monthly Rainy Days*
	Years	mm.	
Iloilo City	36	44.7	7
Lapuslapus, Iloilo City	20	36.8	6
Cuyo, Palawan	36	10.0	1
Batangas, Batangas	30	18.3	4
Calatagan, Batangas	18	7.3	2
Lian, Batangas	18	17.4	2
Ambulong, Tanauan, Batangas	25	14.4	3
Canlubang, Laguna	22	25.2	6
Santa Cruz, Laguna	28	30.9	7
Fort Mills, Corregidor	28	3.7	1
Cavite Naval Station, Cavite	21	13.9	2
Lamao, Horticultural Station, Bataan	20	9.0	1
Manila City	73	11.7	3
Antipolo, Rizal	36	19.9	4
Bosoboso, Rizal	18	12.4	2
La Mesa, Rizal	13	24.2	4
Montalban, Rizal	20	25.0	4
Olongapo, Zambales	20	4.2	1
Iba, Zambales	29	6.5	2
Dagupan, Pangasinan	36	14.5	2
Itogon Mining Company, Mountain Province	16	10.2	1
Baguio City	36	21.9	4
San Fernando, La Union	36	7.4	1
Sagada, Mountain Province	20	27.0	7
Bontoc, Mountain Province	20	25.3	4
Vigan, Ilocos Sur	36	7.2	1
Laoag, Ilocos Norte	30	7.0	1

AVERAGE MONTHLY RAINFALL AND RAINY DAYS FOR THE MONTH OF FEBRUARY IN DIFFERENT TYPES

Second Type:—No dry season with a very pronounced maximum rainfall in Winter.

STATION	*Length of Record*	*Average Monthly Rainfall*	*Average Monthly Rainy Days*
	Years	mm.	
Compostela, Davao	12	233.5	9
Hinatuan, Surigao	11	427.6	21
Butuan, Agusan	35	189.0	18
Surigao, Surigao	36	376.9	19
Guiuan, Samar	26	341.8	19
Tacloban, Leyte	35	216.9	17
Borongan, Samar	36	438.9	21
Catbalogan, Samar	23	197.9	16
Legaspi, Albay	36	292.9	16
Virac, Albay	30	204.1	15
Atimonan, Quezon (Tayabas)	36	113.0	13
Pandan, Albay	7	224.8	8
Lucban, Quezon (Tayabas)	11	207.5	18
Daet, Camarines Norte	12	292.8	17
Infanta, Quezon (Tayabas)	12	276.3	19

(*Continued on page* 5)

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Mechanized Food Production In The Philippines

By AMANDO M. DALISAY

(Dr. Amando M. Dalisay is a member of the newly organized Rice and Corn Corporation (Production end, as differentiated from the Naric which is in charge of Procurement and Distribution) created by President Roxas lately.

For the first time in the Philippines, the government taking the initiative, Filipinos will go into mechanized rice farming in a big scale. This progressive move of the administration calls for the people's unstinted cooperation and encouragement as its success will be duplicated on our private farms. Dr. Dalisay has kindly given us the first opportunity to publish this article of his for which we are thankful to him, and we are very happy to be able to give our readers factual first hand report on this very interesting project of the hour. Editor's note.)

The implementation of the report presented by the Rice and Corn Production Commission to the President of the Philippines will usher in the real beginnings of mechanized agriculture in this country. For the first time, the production of rice and corn and other food crops will be undertaken with the use of modern mechanized methods, starting from planting to harvesting and to the processing of the product. Heretofore, the sole reliance of our farm population for their food crops has been the slow and semi-primitive method of animal and hand culture. Henceforth, our agriculture will enter the era of modern mechanization.

The President of the Philippines, in appointing the members of the Rice and Corn Production Commission in accordance with the provisions of Administrative Order No. 20, gave them a threefold purpose, namely: to recommend areas of public lands and of the idle and abandoned private lands that are suitable for immediate development; to determine the means and submit plans by which these areas may be put into immediate cultivation for the production of rice, corn, and other food crops; and to ascertain the feasibility of utilizing modern farm machinery and equipment under Philippine conditions. To this Commission, the President appointed Felipe Buencamino, Jr., as Chairman, Eduardo Cojuangco, Jose Gaston, Senen Gabaldou, and Luis Lichauco—all large rice planters; and Jose S. Camus, Hilarion Henares, Vicente Tordesillas and Amando M. Dalisay — all government technical men, members. The Commission was instructed to go to work immediately and submit its report not later than December 15, 1946.

After the Commission has made a careful study of the problems involved in mechanized agriculture and after having made preliminary surveys of the possible sites for mechanized food production, it reached a unanimous conclusion that the President's plan of putting into cultivation 500,000 hectares in five years, at the rate of 100,000 hectares a year, for the purpose of producing annually 15,000,000 cavans of palay and 5,000,000 cavans of corn, merited immediate adoption. It was pointed out that the production plan is practicable and economically feasible in view of the availability of adequate personnel, large tracts of public lands as well as idle private lands, and a substantial quantity of war surplus equipment and materials which can be used in mechanized farming. The Commission is of the firm opinion that because mechanized agriculture is a success in the United States and in all progressive countries, it will also be a success in the Philippines.

The Commission, relying on its own personnel and on technical assistance from the various govnernmet agencies, particularly the Soil Conservation Service of the Department of Agriculture and Commerce and the Bureau of Lands, made extensive studies of the requirements of each 10,000 hectare project, going into minute details of the needs for man labor and technical personnel, the machinery, equipment, and other materials required and the financial questions involved. Consequently, detailed gudgets were prepared for the operation of a planning and supervising office in Manila, for the operation and management of each 10,000-hectare project, and for the immediate operation of a pilot farm of about 2,000 hectares. All such studies were based on the operating needs for the whole year of a farm unit or project in full running order, as well as on its equipment and other capital requirements.

The Commission did not spare any effort in undertaking preliminary surveys of the various possible sites that could immediately be put into cultivation. The Department of Agriculture and Commerce, at the request of the Commission, sent out reconnaissance parties which made detailed surveys of project sites in Isabela, Camarines Sur, Mindoro, Negros, Bukidnon and Cotabato. At the same time, some members of the Commission went out in the field and inspected in a preliminary manner six tracts of largely idle and abandoned private and public lands in Pangasinan and Nueva Ecija.

The report and recommendations of the Commission were presented to the President at the appointed time. On the whole, the Commission endorsed the mechanization of the production of rice and corn on certain sites that were surveyed, and advocated the capitalization of a separate entity of the Government to undertake this mechanized farming. All available equipment in the surplus war materials that were turned over to the Philippine Government, and which are suitable for agricultural production, are recommended to be reserved for this program. Only equipment that can not be made available in this manner and which will be used largely to supplement the surplus equipment are to be purchased from private firms. Among the most important recommendations of the Commission, the following may be mentioned:

1. That a corporation be immediately organized to put the program into execution; it should be authorized and empowered to use public and

private lands that are idle and abandoned. In order to carry out this plan in full the Corporation should be capitalized at ₱25,000,000.00.

2. That in the execution of the plan, areas be selected in Luzon, Visayas and Mindanao, based on the reports of the five reconnissance teams now in the field. In the meantime, there are sites which may be opend right away in Pangasinan and Nueva Ecija.

3. That a 2,000 hectare project be immediately startd in lands within the Sabani Estate which are now vacant to the extent of 3,000 hectares, using therein equipment which the AMEC has at present available. Thus much valuable exeperience would be gained in the few months intervening before the development of larger tracts is undertaken.

4. That all equipment needed in this plan, as listed by the Commission and now in possession of the AMEC and the Surplus Property Commission, as well as those to be received from th UNRRA, be reserved.

5. That in order to insure the acquisition of equipment and materials, not surplus, which are not available from local firms, a representative of the President be sent to the United States to give exclusive attention to their procurement in that country.

When the reconnaisance survey of the proposed sites were completed, the Commission recommended to the President the opening up this year of six projects, one each in the Malig Plain of the Cagayan Valley, in Nueva Ecija, in Pangasinan, in Mindoro, in Negros, and in Cotabato.

To give the reader an insight into the operation and management of the projects under consideration, the following data covering the operation of the Manila Office and of a complete project of 10,000 hectares are hereby indicated:

In the opinion of the Chairman of the Commission, the total estimate of ₱2,610,000 is the minimum that may be expended to ensure efficiency and good results in each project. In this connection, it is of interest to note that in NEWSWEEK of December 16, 1946, President Aleman of Mexico asked his Congress for an appropriation of ₱600,000 to cultivate 3,459,000 acres of land; this is an expenditure of approximately ₱412.00 per hectare. The estimated expenses indicated above would mean an expense of ₱261.00 per hectare here in the Philippines.

Under the plan contemplated by the President and endorsed by the Commission created by him, each 10,000-hectare project is estimated to produce annually 300,000 cavans of palay, based on a minimum production of 30 cavans per hectare. At the least, there will also be produced about 100,000 cavans of corn. This estimated annual production is expected to yield a total income of around ₱3,500,000.00. On the other hand, operating expenses for the Manila office and for the operation and management of the 10,000 hectare project, together with depreciation and interest on the capital invested, will amount to a total of ₱1,546,000.00. With five percent of gross income deducted as bonus to all officials, employees and laborers of each project, amounting to ₱97,700.00, the net income of each project is thus estimated at ₱1,856,300.00.

By the end of the fifth year, if all the ten projects contemplated could have been put in operation every year and increased by that number each succeeding year, the production in those projects would have made the Philippines entirely self-sufficient in cereals.

To achieve the ends indicated above, the Manila office, which will be primarily for administration and supervision, will be under an Administrator responsible to the President, assisted by a technical and a clerical staff. Each project will have a superintendent with full responsibility for the operation and management of the project and assisted by farm managers, engineers, and other technicians, each with his own duties and responsibilities. A general outline of the management and operating personnel is sketched above.

An agricultural plan, no matter how well conceived at the outset, is bound to meet certain difficulties. However, careful planning, with an understanding and appreciation of the main problems involved, provides a great deal of assurance that the most important aspects are not left out of consideration. In this manner, the battle for getting the project under way is practically half won. Nevertheless, it must be pointed out that certain problems will have to be met at the very beginning or in the process of putting the proposed sites in operation. In the first place, the entity of the government that will undertake this production program will have to anticipate the insufficiency of farm machinery and equipment with which to undertake two or more of the projects recommended. This insufficiency arises not only from the scarcity of agricultural equipment here in Manila, but also from the very small allocation to this country of machinery and equipment from the United States. Granted that there are enough tractors of all sizes available in the war surplus stock now under the control of this Government, there remains the problem of providing these tractors with the necessary attachment, such as plows, harrows, planters, and grain drills, not to mention har-

(*Continued on page* 18)

1. GENERAL PLANNING & SUPERVISING OFFICE IN MANILA		₱ 130,000.00
2. OPERATION AND MANAGEMENT OF EACH HECTARE PROJECT:	10,000	
A. *Capital Expenses*:		
(1) Surplus Equipment	₱444,844.60	
(2) Equipment Not Surplus	358,155.00	
(3) Housing & Warehousing	400.000.00	
(4) Contingent & Unforeseen	127,000.00	1,330,000.00
B. *Operating Expenses*:		
(1) Salaries & Wages	511,200.00	
(2) Fuel & Oils	264,195.00	
(3) Incidental, Traveling, Office Supplies, Medical, etc.	50,000.00	
(4) Purchase of Seeds	195,000.00	
(5) Contingent & Unforeseen	129,605.00	1,150,000.00
Total for each project		₱2,480,000.00
GRAND TOTAL FOR 1 AND 2:		₱2,610,000.00

"Activated Composting" Simple Fertilizer Production

By: RAUL R. DE ARANA

Composting is probably one of the oldest methods of utilizing refuse, dirt, leaf mold, manure, peat, lime etc., minbled and decomposed or decayed, to fertilize the soil for more healthy plant growth. It is economical, simple and effective. It is known as organic fertilizer as differentiated from chemical fertilizers which is known as inorganic fertilizer.

Organic fertilizers are effective to enrich the soil because they are composed of bacteria which are the real fat of the soil that give nourishment to plants. It is assimilated by the soil more easily as the bacteria are really the end product of a soil's fertility. Also, organic fertilizer gives the soil the humus necessary for luxuriant plant growth. This is so because humus is the organic part of the soil, cool and easily assimilable to the plant; whereas, inorganic or chemical fertilizers, to become useful to the plant, must first be decomposed in the soil into the elements absorbed or assimilated by the plants. In other words, the soil only assists the inorganic fertilizer to become elements which are forms, absorbed by the plant. Therefore, the inorganic fertilizer's assimilable form does not stay and become part of the soil as the organic fertilizer which, like humus, becomes the organic part of the soil.

Composting is known in practically all countries and is perhaps the oldest method of fertilizing. Savages and enlightened people practice composting although savages cannot explain the chemical value of compost. But the fact is, they just know the value of compost from the result it gives the plants when applied to the soil.

In the Philippines, composting has been a practice from time immemorial. There is no record that shows when the Filipinos started composting. This is immaterial for our purpose, but this is mentioned in passing, because now that chemical (inorganic) fertilizers are hard to get and inadequate, we do not avail ourselves fully, of using a method we are familiar with since long long ago.

Sometime ago, an article on composting was published in this magazine (Vol.-1 No. 9) entitled "Preparation and Application of Cospost," by Mr. Gregorio S. Chan, Provincial Agricultural Supervisor of Bataan. In his article, Mr. Chan also claims composting is not popular in this country although farm people are familiar with it. Of the methods Mr. Chan discussed, the pit method is the most widely practiced here. This is accomplished by digging a pit or hole in the ground, generally in the shade, where all household garbage, leaves, dirt, manure and other refuse are dumped and left to decay. This later, he says, "under field or open air conditions, the compost is ready for use within four to five months".

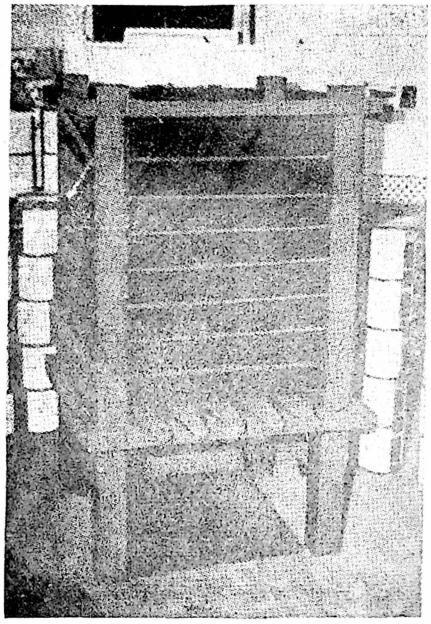
Four to five months is a long time. Sometimes it takes a year before hard materials like bones, hoofs, etc., are decayed and before a pit full of materials is completely fermented and decomposed to become available as fertilizer. This is of course to be expected as the method is primitive. There is however a method now used widely in the states that requires only thirty days to have compost fertilizer. This is known as "Activated Composting."

"The 'Activated Composter Process' is an applied principle of nature, thru the use of a scientifically designed cabinet and the application once each week of two activating compounds, provided for the purpose of stimulating and adding to the favorable natural bacteriological action."

Cabinet: "The De Luxe Model is square, approximately 33 inches wide by 5 feet high, with a capacity of approximately 5,000 lbs. of garbage, etc. per annum.

"All other models are about the same width and height and are twice, three times and four times the length, with more than four times the capacity of the De Luxe Model".

You Can Build Your Own: "The activated Composter has been scientifically designed but is simple and easy to construct. Almost anyone can build a Composter who can handle a saw and follow the simple plans furnished with complete instructions.



DE LUXE MODEL COMPOSTING CABINET

"You probably have much of the material suitable for this, used material will do as it should be painted anyway. New material for the De Luxe Model should cost about P50.00".

Operation: "Dump in the garbage, manures, small dead animals, birds, fish, garden rubbish, green weeds, dirt and when available some leaves, grass cuttings, etc. No mixing, no turning over, no transferring operations are necessary. Then composter (activating compound) can be dumped into everyday or intermittently or can be filled at one time. Thirty days after starting, composted material should become available continously, provided you keep on dumping into the composter as the material in it settles and composts.

"Garbage when properly composted alone or in combination with certain other waste materials, probably becomes the most valuable of all plant foods containing rare trace elements so necessary for lasting soil fertility.

Where to Use the Composter:

"The 'Activated Comporter' as a utility is suitable for homes, estates, schools, operating cafeterias, gardeners, green houses, golf clubs, resort hotels, rabbit and poultry and dairy farms, or wherever it is desirable to secure the maximum results from the conversion of waste organic materials into a valuable fertilizer at a minimum cost."

Boon To the City of Manila: One of the worst enemies of city people is the "stink" of our garbage dumped along the streets. It is unhealthy, unsightly, and unbecoming of a city as advanced as Manila. Yet all these dirt and stink could be converted into an important necessity of our country today—fertilizer.

With the 'Activated Composter' in place of our garbage cans and empty drums, the stinky smell of city garbage will disappear, because the action of the "activating compounds" eliminate the smell of fermenting and decaying materials.

The "Activated Composter" will not only solve Manila's garbage problem but will be a source of revenue for the city. This revenue is not to be scoffed at as it may even cover the city government's payroll annually.

The more garbage there is under this process, the more blessing it is as it becomes a bigger source of income for our government. This of course could be expanded to all cities and towns of the Philippines. Then, fertilizer will no longer be a problem to our government, to our farms and farmers if this is carried out.

Within the next month, models of this "Activated Composter" will arrive in Manila. For inquires, interested parties may inquire at the office of this magazine at 1055 Arlegui, Manila.

AVERAGE MONTHLY RAINFALL AND RAINY DAYS FOR THE MONTH OF FEBRUARY IN DIFFERENT TYPES

(*Continued from page* 1)

STATION	*Record of Length*	*Average Monthly Rainfall*	*Average Monthly Rainy Days*
	Years	mm.	
Zamboanga City	38	55.8	6
San Ramon Penal Colony (Heights), Zamboanga City	12	65.5	5
Sibuko Farm School, Zamboanga	13	59.2	4
Central Camp, Davao	6	179.2	14
Dansalan, Lanao	4	180.1	15
Cagayan, Oriental Misamis	29	58.5	6
Dumaguete, Oriental Negros	27	79.5	9
Hacienda San Jose, Oriental Negros	19	71.0	7
Iwahig Penal Colony, Palawan	24	39.2	4
Hacienda Asia, Occidental Negros	10	49.7	5
Central Bearin, Occidental Negros	16	47.0	4
Binalbagan Estate, Occidental Negros	18	41.2	7
Isabela Sugar Company, Occidental Negros	16	51.3	5
Cebu Sugar Company, Talisay, Cebu	10	58.1	10
Cebu City	36	73.5	11
Hacienda Valeehermoso, Oriental Negros	19	66.6	8
Pontevedra, Occidental Negros	16	44.7	6
Lucena, Iloilo	20	54.5	5
Hacienda Lanjagan, Iloilo	10	42.7	5
Capiz, Capiz	36	91.7	12
Masbate, Masbate	34	122.8	12
Odiongan, Romblon	13	27.3	7
Romblon, Romblon	35	91.3	11
Boac, Marinduque	14	66.1	12
San Pablo, Laguna	13	30.9	7

AVERAGE MONTHLY RAINFALL AND RAINY DAYS FOR THE MONTH OF FEBRUARY IN DIFFERENT TYPES

Fourth Type:—No very pronounced maximum rain period and no dry season.

STATION	*Length of Record*	*Average Monthly Rainfall*	*Average Monthly Rainy Days*
	Years	mm.	
Lapac Agricultural School, Sulu	18	92.1	5
Glan, Cotabato	18	78.8	7
Jolo, Sulu	41	105.0	8
Paranglalap, Zamboanga	19	98.5	5
Latuan, Zamboanga	19	73.7	5
Upi, Cotabato	10	99.4	10
Davao City	36	113.4	8
Kidapauan, Cotabato	18	110.3	8
Maridagao Rubber Experimental Station, Cotabato	9	134.7	8
Camp Mactan, Davao	6	157.8	14
Impalutan, Bukidnon	11	115.9	13
Siari Valley Estates, Zamboanga	9	78.0	6
Pamplona Plantation Company, Oriental Neg.	11	73.4	7
Hacienda Palanas, Oriental Negros	19	62.7	7
Tagbilaran, Bohoy	36	90.0	11
Maasin, Levte	36	156.4	8
Hawaiian Philippine Company, Occ. Negros.	18	122.0	14
North Negros Suar Company, Occ. Negros.	15	158.1	14
Janiuay, Iloilo	18	56.8	10
Ormoc, Leyte	36	112.4	12
Dueñas, Iloilo	20	54.8	8
Bitaogan, Iloilo	20	84.0	8
Dumarao, Capiz	20	99.4	8
Dao, Capiz	20	117.2	10
Calbayog, Samar	35	169.3	16
Halcon Rubber Experimental Station, Mindoro	9	104.3	12
Naga, Camarines Sur	35	81.7	9

THE RAISING OF GORAMY

By THE DIVISION OF FISHERIES

The goramy.—The goramy are large fresh-water fish of Java, Madura, Sumatra, and Borneo of the Malay Archipelago. Some authorities claim that they are native of Cochin-China. They have been introduced into Europe, Mauritius, Cayenne, and Australia in 1864; Madras in 1886; Ceylon in 1909; Philippine Islands in 1927; and other places as valuable food fish.

The goramy have always been held in high esteem among both the Europeans and the natives of Java, and wherever they have been introduced. They are also well liked in the Philippines. Their flesh is of a light-yellow straw color, firm, and easy to digest.

Farm outlay.—A goramy farm outlay should consist of three units, namely, head pond, breeding pond, and rearing pond. The head pond, which is directly connected with the supply stream by means of a canal, acts as a reservoir where the water can subside and breed plankton. The other divisions are constructed on either or both sides of a central canal that leads from this pond. The breeding pond, or the stock pond, should be about two meters deep so that the adult fish could move and swim about with ease and comfort. The rearing ponds are large ponds(about as deep as the breeding pond) where the young fish, after they have been segregated from their parents, are kept until they reach marketable size.

Growth of the goramy.—The goramy breed in captivity in their third or fourth year. Their growth continues indefinitely, depending upon the conditions of their envirnoment. Under confinement they flourish and increase rapidly if the water is warm, well aerated, and extensive. They continue to grow for years and attain a very considerable age and size. The fry or newly-hatched fish are, of course, every small and more or less about half an inch in length; at the end of the first year they attain a length of about 9 inches; in the second about 12; in the third, about 14; and in their fourth year, 17 inches, at which time they may be expected to breed.

Spawning habits.—The spawning season of goramy in the Philippines is throughout the year. On spawning, they pair off, each pair selecting a suitable place wherein it constructs a crude nest. A muddy bottom of varying depths is preferred. For their nest they usually use some kind of water grass which grows on the surface of the water and whose floating roots, rising and falling with the movements of the water, form natural galleries under which the fish can conceal themselves.

In the pond, among the plants the goramy attach their nest of plants and mud, which is nearly of spherical form, resembling (in form) those of some birds. Nests vary in size in proportion to the fishes, but usually are about one foot at their longest diameter. It takes about a week for the fish to build the nest.

When the nest is completed, the female deposits her eggs which, in a moderate-sized individual, number from about 800 to 1,000. After the eggs have been deposited and fecundated and while they are hatching, the parents remain near, zealously guarding them.

The eggs hatch in about 10 days, and in the nest the young find refuge during the first days of their life under the protection of their parents. The macerated vegetable matter of which the nest is partly composed, forms their earliest and most suitable food. The young do not soon disperse, but keep together in schools under the guidance of the parent fish.

Feeding habits.—The goramy are omnivorous, taking at times flesh, fish, frogs, insects, worms, and many kinds of vegetables; they are, however, essentially vegetarian and are especially fond of the leaves of aquatic and semi-aquatic plants. For the first two or three times a week with young termites (white ants), or *anay*, and with other insects. As they grow older they subsist upon the leaves of submerged water plants, *kangkong*, *gabi*, cabbage, radish, lettuce, etc. They also take potatoes, corn, camote leaves, arrowroot, bread and the like.

Being essentially vegetarian, they are apt to be preyed upon by such carnivorous fresh-water species as the *dalag*, *hito*, and *puyo*. For this reason the supply and drain gates must be properly screened in order to prevent the entrance of undesirable fish and fish eggs. The pond itself must be free from these species before stocking it with goramy.

Commercial possibility.—The following figures are based on prewar rates. To approcah present conditions the figures may be multiplied ten times.

I. Probable capital:	
A. 1 hectare of fishpond site	P200.00
B. Development of site	1,500.00
C. Fluid capital	300.00
Total	P2,000.00
II. Probable expenses (annual):	
A. Maintenance—	
1. Wages (1 laborer at P20 per month)	P240.00
2. Supplies	50.00
3. Repairs	60.00
B. Fixed charges:	
1. Interest on capital, 10 per cent	200.00
2. Land tax, .0087 per cent of assessed value (200 pesos)	2.00
C. Sales charges:	
1. Sales tax, 1.5 per cent of sales tax	23.00
2. Bad debts, 1.5 per cent of sales	23.00
3. Marketing, 8 per cent of selling price	120.00
Total	P718.00
III. Probable gross income (annual): Sale if 5,000 marketable fish (1 year to 2 years old)at 30 centavos each	P1,500.00
IV. Operating expenses (Item II)	718.00
V. Probable net income: 39.1 per cent of te total capital	782.00

IN LIGHTER VEIN

(Reprint from Coronet)

BE A FRIEND TO MAN

Whenever people take a poem to their hearts, the years of its popularity bring forth colorful stories of how the verse came into being. One of the most appropriate is that universal favorite by Sam Walter Foss, The House by the Side of the Road, which was inspired by the friendliness of a New England farmhouse.

Foss, an enthusiastic traveler, was hiking in the country one day when he saw a small unpainted house nearly astride the road. He was hot and tired as he climbed the hill to the house and read: COME IN AND HAVE A COOL DRINK.

A crude signpost pointed to a well-worn path which curved around the house. Following it, Foss discovered a spring of ice cold water in which a barrel had been sunk. An old gourd dipper hung above it, and Foss drank long and thirstily. Then he saw a wooden bench which held a bowl of ripe apples. There was another sign: HELP YOURSELF.

Biting into an apple, Foss went up to the house. There he found an aged couple, with the rocky farm their only means of support.

"You see, sir, it is little we can do for our fellow men. But we do have the best water in the country and some nice trees in the orchard. From the day the first plum ripens until the plucking of the last red apple, we place whatever fruit is in season in that bowl on the bench. There's always a gourd of cold water handy. So little we can do for the Stranger!"

"Yes, the good Lord enables us to do this little bit for the folks who go up and down the road," the wife added.

All that day and night the words stayed on with the traveler.

"It is little we can do but—"

Sam Walter Foss bent his head over a piece of paper and wrote:

"Let me live in a house by the side
of the road
Where the race of men go by—
They are good and they are bad,
they are weak, they are strong,
Wise, foolish—so am I.
Then why should I sit in a scorner's seat,
Or hurl the cynic's ban?
Let me live in a house by the side
of the road
And be a friend to man."

A MAN WHO was passing a neighborhood store heard such a terrific ar-

(*Continued on page* 9)

Questions And Answers On Duck Raising

Conclusion from last issue

By: CARLOS X. BURGOS

69. Until what age are breeding ducks kept in Pateros?—They are kept as long as they are laying eggs satisfactorily. Ordinarily, heavy layers are still good up to the age of three to three and one-half years. Young birds are raised in readiness to replace those that are no longer efficient producers. This is one reason for raising birds of different ages. Usually, the members of the whole flock have to be replaced as there is no way of telling under present practice which among the group are still laying well.

70. What is the proportion of males to females in the hatched eggs?—Usually, the proportion is 50-50. Sometimes, in every 100 birds there may be a few more females than males or vice-versa.

71. What should be done to surplus male ducklings?—If facilities are available, they could be raised as "green ducks" until they are about three to four months old, as is done in the United States. There is a good demand for them in restaurants, where they are cooked and sold as chop-suey and pato-"pato-tim" tim.

72. What are the advantages of duck raising?—They are as follows: (1) It entails less expense in fencing, housing, and equippment than th ecommercial chicken raising; (2) it incurs less expense in labor; (3) ducks are less disposed than other fowls to damage crops; (4) they are less liable to contract disease; (5) they can be cheaply raised where snails and small clams are easily and cheaply available; (6) they are not very much affected by rainy weather; and (7) their eggs are bigger than those of chickens and their average egg production is higher than the chicken's average egg production.

73. What are the disadvantages of duck raising?—They are as follows: (1) Duck meat and duck eggs are not so popular as chicken meat and chicken eggs; (2) ducks are easily perturbed because they have a more nervous temperament than the chickens and for this reason, their egg production is lowered; (3) they consume more food than chickens; (4) their grounds are more difficult to keep clean; and (5) duck raising is more limited to certain areas.

74. Can ducks and chickens be raised safely together?—Chickens do not mind so much the native ducks, though now and then they pick on them, especially during feeding time. They try to do the same thing to Muscovy ducks, but there are times when these ducks may retaliate and even kill the cruel fowls (usually the native roosters).

75. Can drakes be caponized?—Yes, but this is not done as a rule.

76. Is there any advantage in caponizing drakes?—Yes, caponized drakes lay on fat easily and make better meat for table purposes. Very few, however, eat ducks, and the production of capons cannot demand high prices, especially in this country where fowls are not bought according to actual weight.

77. How are drakes caponized?—In the same way as the cockerels.

78. At what age should they be caponized?—When they are four to five months old.

79. Will ducks make a good stuffed dish ("relleno")?—Some people prefer it even to chickens. On such occasions as fiestas and weddings, ordinary stuffed ducks have been served by some families in place of chickens to economize.

80. What is the objection of some people to the duck meat?—Their objection is that it has a fishy taste (malansa), especially to those who have not been accustomed to eating duck meat.

81. What is the remedy for doing away with the so-called fishy taste?—The common practice is to fast the duck for six to twelve hours before killing. Then, pour on the dressed carcass two spoonfuls of white wine or of gin. Some people force the bird to take two teaspoonfuls of gin, and in thirty minutes the bird is killed by bleeding, in the same way as chickens are bled.

82. What are the dishes into which the duck meat may be cooked?—The most common is the ordinary dinuguan, which is condimented with fine-chopped bamboo shoots, papaya, or potato. Duck meat may also be prepared as estofado, which is cooked in a double boiler pot or caserole; as adobo; or as relleno. as already mentioned.

83. What can be done when there are many ducks available and disposal is not easy?—Duck meat may be salted and dried. In this form it may be cooked together with beef or any other meat in preparing a dish of stew (nilaga). The addition of salted duck meat renders it a more delicious dish.

84. How is salting of duck meat done?—In the making of a salted duck meat (tapa) the first thing to do is to kill the duck, as before described. Then, dress it, and after removing the entrails cut the duck open at the back and press it flat on a pan containing salt, mixed with a little quantity of saltpeter (salitre), pepper, crushed garlic, ordinary vinegar, and little sugar. See that every portion of the duck is salted. Put some weight on top of the duck to keep it pressed for 24 hours, after which such position should be reversed for six hours. Keep it in a cool room preferably in the ice box or refrigerator. Then, dry it in the sun to the consistency of tapa. When the duck meat is well dried, it keeps for a long period.

85. How are duck eggs salted?—Clay from ant hills that has previously been pulverized and dried is mixed with equal parts of salt and kneaded to a soft putty consistency by the addition of water. The eggs are enveloped with this salty putty and placed in wide-mouthed containers with lids. These in turn are put in cool rooms. In ten to fourteen days the eggs are salted. They are then washed and hard boiled and painted red to distinguish from other eggs. The longer the eggs are in the salted putty the salitier they become.

If the clay mixture dries up, some water may be added to it. If no egg breaks during the process the putty may be used again but with the addition of some more salt. Only fresh eggs should be used for salting. Salting of duck eggs is common in the Philippines.

86. What may be said of the production of duck eggs in Pateros?—The production of ducks eggs in Pateros is influenced by the quality of the snails scooped for duck feed. The snails feed on diatoms and other inorganic matter found in sediments, which the Pateros raisers call alibuab. If this feed becomes scarce, snails starve and many die. Many snails also die when they are buried deep in debris as a result of heavy winds that blow toward the shore.

87. What is the average direction of these winds?—During the months of June, August, and September, egg production in Pateros is low, because the snails are not plentiful. The prevailing winds then are from the southwest. Egg production, however, is high in the oppsite shores from which such winds

come. In October the predominant wind comes from the south; in November, from the east; and in December, from the northeast. In January and February, the east wind again returns. From October to January inclusive, the egg production is fairly good in Pateros. In March, April, and May, the winds prevailing are from the southeast. February to May inclusive are considered the months of high egg production in that locality.

88. Do the algae ("lya") affect egg production?—Indirectly, they do. The growth of algae is favored during the hot months from February to May inclusive. If they are blown over the snails bed in excessive number the decomposing organic matter resulting from these dead algae is detrimental to the frowth of snails.

89. Is there any other reason for low egg production?—Yes, the molting, which takes place when ducks do not get enough food.

90. Is there a market for old ducks, that are discarded for being no longer productive?—There is always only a limited demand for them, which however increases with the decrease of the supply of chickens. It is expected that this demand for ducks for table use will remain even during normal times. In 1938, 67,749 ducks were recorded received in the Manila markets, mostly from Rizal Province.

91. What is the estimated duck-egg production for the Philippines according to the 1939 census?—About 45,000,000 eggs. Of this number, about 2,500,000 were made into balut; and 1,500,000, into salted eggs. The remaining eggs were used in bakeries, restaurants, and households. These estimates appear low, especially for balut, for this is the kind of egg on which the commercial production of duck eggs is based.

92. Of that total amount of eggs what is the approximate number used in Manila?—On that, there is no accurate record, as the supply may reach the customer through various unverifiable ways. A statistical survey of the Manila municipal markets, however, shows that over 3,000,000 eggs were recorded during 1938, largely from Rizal, Bulacan, Nueva Ecija, Pangasinan, and Batangas. Likewise, it is possible that part of the number credited to Rizal and Batangas came from Laguna.

93. Is it possible to raise native ducks on other snails in places where the ordinary fresh-water snails are not available?—A limited number may be raised near brooks, ponds, and places where water collects. In these bodies of water, common pond snails ("kuhol") may be put if they have not yet found their way to them.

94. How can the ducks eat the "kuhol"?—They eat the small ones which they can break easily, but the big ones have to be crushed by pounding.

95. Is the "kuhol" as good as the common "suso" fed to ducks in Pateros?—Some experienced duck raisers in Pateros claim that ducks when fed on kuhoy lay well longer than when they are fed on suso, but this fact has not yet been experimentally determined.

96. What is the best way of starting the culture of kuhol?—Kuhol appear to breed in large numbers during the months of July and August in places with weather similar to that of Manila. Collect the full-grown kuhol and place them in a fenced pond to which monitor lizards (bayawaks) have no access. Kuhol live on vegetation and on organisms found on or near the banks of pond.

97. Can "Kuhol" survive if the pond dries up?—Kuhol can survive short droughts by burrowing several centimeters into mud.

98. What breeds of ducks are at present available?—They are the native ducks known as itik, which are sold in Pateros at present for about P10 each, and the bibi, or Muscovy (pato real), which are available in many places, but not for sale. Some may be found for sale from time to time at the municipal markets at P8 to P12 each. There are also white ducks in San Quintin and other towns of Pangasinan which are known there as Peking. They may be had from time to time in those places at P6 to P10 each. They are larger than the itik.

99. Can ducks be purchased from the United States?—There are several livestock and poultry exporters whom the Bureau of Animal Industry has tried to contact recently with regard to the availability and prices of ducks purchasable from the United States.

100. Can the public order direct from them?—Any person interested may inquire first for particulars from the Bureau of Animal Industry at Pandacan, Telephone No. 8-64-18.

101. Why eat "balut"?—It is wholesome, delicious, and high in protein, minerals, and vitamins. Those who have not eaten it since childhood may have a prejudice against it, the same prejudice entertained by people who do not eat rabbit. The contents of a cooked balut are clean and free from infection. If such eggs wrapped in separate cellophane wrappers, or put in clean paper bags accompanied by some salt, as is done now by some vendors, the number of balut eaters will probably increase.

(END OF QUESTIONS AND ANSWERS ON DUCK RAISING)

THE LAYMAN

A gigantic social security insurance system calculated to insure millions of Filipinos and also provide ample funds for establishment of free hospitals, children's nurseries, poorhouses, technical and vocational schools, and industrial and agricultural farms, is envisioned in house bill No. 693 fathered by Rep. Leon Cabarroguis of Nueva Vizcaya.

Passed by the lower house in last year's special session, the bill is now under study by the senate. Labor Secretary Pedro Magsalin, upon Malacañan's inquiry for opinion, approves the measure in principle as beneficial to the Filipino masses.

The Cabarroquis bill automatically insures all government and private employes for P1,000 each by merely paying a premium rate of P0.05 a day or P18 a year. Even children, the unemployed, and the decrepit may be insured for the same amount.

Farm tenants are also to be insured by their land-lords, the latter contributing for the former's premiums according to the ratio observed in crop divisions today.

Collections from this insurance, which the Nueva Vizcaya solon estimates at P100,000,000 annually, will go primarily for the payment of death claims. All amounts in excess will be spent for the establishment of the following:

(1) Poorhouses for the care of indigents; (2) hospitals for laborers and farm hands where they will be given free treatment and hospitalization; (3) children's nurseries to take care of babies while their mothers are at work; vocational and technical schools where the young and the old will be taught all kinds of trades and farm work, free;

(4) Establishment of dairy farms, the milk production of which will be given free to all children up to the age of three years; (5) poultry, duckery, piggery, and livestock farms, the products of which will be given to poorhouses, hospitals and other social institutions that may be created under the proposed insurance bill.

IN LIGHTER...

(*Continued from page 7*)

gument going on inside that he went in to investigate. He found only the proprietor.

"Whom were you arguing with in here?" he asked. "You're all alone."

"I get bored," the proprietor explained, "so I talk to myself."

"Well," the man reasoned, "if you're talking to yourself, why do you have to argue?"

"Because," the owner retorted, "I can't stand a liar!"

I. Introduction

The overseas trade (exports and imports) of the Philippines before the Greater East Asia War consisting of about P500,000,000 was largely based on agricultural exports consisting mostly of sugar, coconut products, abaca and tobacco in exchange for manufactured articles. Rice imports for the period 1937-1941 totalled P2,046,781; wheat flour, P9,725,193; vegetables and preparations P4,191,641; fruits, nuts and preparations P3,100,189.

Farmers' cooperative associations would do well to bear these figures in mind. Upon them devolves the responsibility of producing the country's food and other crops.

The growing of the castor oil bean plant on a commercial scale may be engaged in by the association. This plant yields, besides castor oil which we all know about, an oil that is good for airplane lubrication. The potentialities of this plant are great. And yet it is not very exacting in its soil and climatic requirements.

Another crop of great potentialities is the soybean. The soil and climatic requirements of the soybean plant are similar to those of the mungo.

Cotton growing is not a difficult enterprise. Cotton has a ready market, the demand for it being great.

One of the steps in farm improvement and the reduction of costs by the government is the operation of experiment stations where improved plants are produced and tested. The improved plants are distributed to farmers either directly or indirectly through the Provincial Agronomists of the Bureau of Plant Industry. The results have not been as expected because the farmers in the past were not properly organized. Farmers' cooperative associations will find their greatest field of service in the improvement of yield, diversification of crops and in the new profitable enterprises.

II. Plan Of improvement

The plan of farm improvement, namely, increasing yields and improving methods utilizing the farmers' cooperative organization as a medium for the distribution of improved plants and for the dissemination of information on improved cultural methods will, it is hoped, bring very desirable results.

Farm improvement, therefore, as evisioned, should be one of the main enterprises of the cooperatives association and should synchronize with the work of the government along this line.

The association should select farmer-members who are willing to convert their lands or part of their lands into propagating plots where to raise the plant materials received from experiment stations. The seed may be distributed to its farmer-members. The association may make arrangement with its farmer-members for leasing portions of their fields to be managed in accordance with improved cultural practices. The results obtained from the leased parcels of land may then be compared with those obtained from lands cultivated with the use of antiquated methods and in this way the farmer-members will be readily convinced of the advisability of using improved methods in view of the decided improvement with the use of the latter. The association may avail itself of the services of the Bureau of Plant Industry for necessary help and guidance.

1. Procedure

The balangay may undertake crop improvement with the following program of action:

.1 Survey of local conditions (gathering of information, etc., with the aid of the Provincial Agronomist of the Bureau of Plant Industry).

.1 Meeting of members of the balangay to discuss the problem.

.3 Plan of action.

.4 Determintion of area for actual trial planting.

.5 Observation of results.

.6 Discussions and conclusions based upon the results obtained in the trial planting, preferably during annual farmers' meetings.

.7 Revised plan in terms of the results obtained to adapt to local conditions.

2. Guiding principles

.1 Use of standard varieties.

.01 The best adapted standard varieties of crops grown in the locality should be detedmined and the inferior ones eliminated, with the help and guidance of the local experiment station or the local agent of the Bureau of Plant Industry.

.02 Selected seed and plants of high-yielding standard varieties adapted to soil and climatic conditions of the locality should be used.

.2 Adoption of improved cultural practices.

01 Proper land preparation.

02 Proper sowing and planting.

.03 Timely weeding and cultivation.

.04 Timely irrigation and drainage.

.05 Proper fertilization work.

.0 Introduction and acclimatization of promising varieties found in other places and the continuous selection and purification of seed of established standard high-ylelding varieties.

3. Varieties

A thorough knowledge of the different varieties of crops grown is essential. All varieties of crops grown therefore, should be studied. The best varieties should be retained and the inferior ones discard. The use of selected seed and plants of high-yielding standard varieties adapted to the soil and climate of the locality or region is the key to crop improvement. The Bureau of Plant Industry should be consulted.

For rice, the best palagad varieties (varieties with pedigrees) to plant are Guinangang Strain I and Sepot. Kinastila IV is a pedigreed upland variety. Raminad Strain No. 3, Horai, Elonram and Ramelon are desirable lowland varieties. For Ilocano palay, the variety Binacroy is recommended.

P. S. A. 7, P. S. A. 14 and the Alunan hybrid are desirable varieties of sugarcane.

Szinbat mandarin hybrid is recommended for the mandarins.

4. Soil and climate

The different crops, however, have different soil and climatic requirements. Actually, climate is an important factor in determining plant distribution. On the other hand, because soil is an expression of environment including climatic forces, soil types favorable for specific crops necessarily connote also favorable climatic conditions. Broadly speaking, relative tillability and fertility of the soil of good water-yielding capacity are favorable for the growth of the most improved plants. With suitable climatic environment, some soils seem to show a wide range of crop adaptation. There are six fundamental principles that should guide us in the choice of soils for crop planting. These are: (1) suitability to the inclemencies of the weather required for most efficient production (2) resistance to soil erosion (3) adequate moisture-carrying capacity to meet the water requirement of the crop under normal rainfall or irrigation (4) adequate aeration to permit the development of a

FARM IMPROVEMENT

By HILARION SILAYAN

favorable root system (5) sufficient available plant nutrients for profitable yield (6) freedom from adverse chemical conditions, and (7) absence of plant pests and diseases.

5. Adoption of improved cultural practices.

The preparation of the land directly affects the yield of the crop. Seed planted in poorly prepared land may fail to germinate. And if it germinates at all the resulting plant may be weak and may easily wither and die. The preparation of the land should be thorough in order to provide for ample plant growth and in order to attain the following results: (1) destruction of weed growth (2) loosening and proper aeration of the soil (3) proper development and growth of the root system (4) availability of plant food and (5) destruction of plant pests and diseases that may be present in the soil.

6. Timely planting

Oftentimes crop failures are mainly due to untimely planting. The kind of crop and the season of cultivation should be stirctly observed in order to insure successfull crop production. To plant out of season, that is, to do it either too early or too late is inimical to crop growth. Favorable conditions insure rapid growth of the plants. Seed or plants that are broadcast or set on time not only may escape the attack of plant pests and diseases that may appear out of season but also destruction by typhoon and drought.

7. Proper distancing

The proper distancing of plants is cultural requirement that vitally effects crop yield. Close spacing or crowding retard growth and causes improper development of the plants due to insufficient sunlight, air, and necessary plant food materials in the soil. The reduced vigor of the plants as a result of improper distancing makes them susceptible to the ravages of plant pests and diseases.

8. Timely irrigation and drainage

The value of water in th ecultivation of any crop cannot be overemphasized. Different crops, however, vary in their water requirements. An excess of water is also detrimental. It should be remembered that irrigation is an aid in crop production on soils that are not adequately supplied with natural water. The water-holding capacity of soils being limited, the supply of water must be replenished from time to time either by rainfall or by irrigation.

The use of irrigation water, however, is governed by the ability of the soil to hold water and to dispose of it to prevent souring. The relation of souring to soil has not been properly studied as witness the extensive use of irrigation facilities in rice fields particularly in Central Luzon. Of course it is well known that the use of irrigation guarantees a sure crop of rice even in periods of drought. But it must be borne in mind that irrigation and drainage go hand in hand. To insure the productivity of irrigated lands, not only must the quantity of irrigation water applied be sufficient to supply the crop requirement but also the drainage facilities must be adequate to prevent souring of the soil by the removal of excess water.

9. Use of fertilizers

The object of fertilization is to replenish the element used up by the plant during its vegetative growth. In fertilization work the maintenance of the nitrogen content of the soil is the primary objective to enhance the productivity of the crop. The purpose of the use of green manuring, farm manure, and commercial fertilizers is to supplement the natural food supply of the soil. An adequate amount of plant food material results in undernourishment. The proper application of fertilizers to crops, therefore, is of consideragle importance. A word of caution must be said here in this regard. Commercial fertilizers do more harm than good when applied excessively or untimely. The application of commercial fertilizers, therefore, should be done with extreme care in order to avoid crop failures. The Bureau of Plant Industry may be of assistance in the choice of proper fertilizers.

TABLE 1. Food crops to grow after rice in relation to field and climatic conditions:

I. In regions enjoying the first type of climate (two pronounced seasons: dry during the months of December, January, February, March, April and May; wet during the months of June, July, August, September, October and November): Abra, Ilocos Norte, Ilocos Sur, southern half of Iloilo, Laguna, La Union, southern and western Mindoro, southern part of Mountain Provinces, Nueva Ecija, western side of Nueva Vizcaya, Occidental Negros, western part of Oriental Negros, western Palawan, Pampanga, Pangasinan, Rizal, Tablas, in Romblon, Tarlac and Zambales.

(*See Table below*)

———oOo———

ANILAO, Iloilo, Feb. 12. — An ordinance recently passed by the local municipal council has made it compulsory for each municipal employe to maintain a garden at the town plaza.

In passing the ordinance, Municipal Mayor Cresencio L. Glarino explained that the municipal employes should take the lead in setting an example in the national food production campaign.

TABLE 1

Types of rice land indicating the planting and harvesting seasons of rice under each type.	Supplementary food crops to grow after rice harvest. Important crops in capital letters.		
	K i n d	Planting Season	Harvesting Season
1. Irrigated rice land: Planting season— June—Aug. Harvesting season— November to January	Palagad rice	Nov.-Feb.	April-May
	Ampalaya	Nov.-Dec.	March-May
	Camote	" "	March-April
	Condol	" "	" "
	Corn	" "	Feb.-March
	Cucumber	" "	Feb.-April
	Eggplant	" "	" "
	Gabi	" "	April-June
	Garlic	" "	Feb.-March
	Mungo,	" "	
	Soy bean,	" "	
	Kibal,	" "	Jan.-May
	Pea, Etc.	" "	Jan.-Feb.
	Mustard	" "	
	Onion	" "	Feb.-March
	Peanut	" "	March-April
	Pechay	" "	Jan.-Feb.
	Radish	" "	" "
	Squash	Nov.-Feb.	March-April
	Tomato	" "	" "

(*Continued on page* 13)

PROGRESSIVE FARMING — "ROTOTILLERS"

RAUL R. DE ARANA

"Rototiller" is the latest inovation in the tillage of the soil. It derives its name "Roto" from Rotary. The rotary action of the blades helps propel the machine. This is exactly the opposite to the "anchor-dragging" action of the old-type tilling tools. Manufacturers of "Rototillers" claim that in a single pass over fallow ground, the rototiller produces a better seed-bed than is possible to obtain in two, three or four operations using the conventional plow, disk and harrow. The fast fine cut of the blades, pulverizes the soil at one time. Because of the light weight of the machine, it requires only a fraction of the horsepower required for tractor-drawn implements.

At present there are two kinds of Rototillers being manufactured in the States in a commercial scale. These two kinds are the "Roto-Ette" the all-purpose power gardener, manufactured by the "Rototiller Inc., Troy, N. Y." the specifications of which is as follows:

Motor:—1-1|2 Horsepower
Weight:—232 lbs.
Tilling width:—9" or 14" as desired
Depth of Cut:—1" to 6"
Lawn Mower:—25" or 30" cut
Field Mower:—30" cut
Snow Plow:—30" width

The other one is the "Ariens" — tiller" manufactured by the "Ariens Company, Billion, Wisconsin, U.S.A." The Ariens is the bigger of the two with two sizes 6HP and 9HP, specifications of the 9 HP of which is as follows:

Motor:—9 Horsepower. Wisconsin 4 cycle cylinder 3-5|8" bore x 4" stroke air cooled equipped with oil bath air cleaner, high tension magnets with impulse starter, mechanical governor.

Clutch:—Twin Disc running in oil bath.

Transmission:—Two speed forward and reverse

Wheels:—Standard equipment 5" x 12" tractor tires or steel wheels. Wheels are free wheeling or can be locked if desired.

Handlebars:—Adjustable up or down to suit any operator and to either side of machine so operator does not have to walk in newly tilled soil. All control within easy reach of operator's position.

Speed.—Low 1|2 to 1MPH, high 1 to 2-1|4 MPH, reverse 3|4 to 1-1|2 MPH.

Fuel Consumption:—5|8 gallon per per hour full load.

Capacity:—20 inch cut 1-1|2 acre per day deep tillage, cultivating up to 1|2 acre per hour.

Depth:—Easily regulated from 2 to 10 inches.

Width foTillage:—20 to 26 inches.

Dimension:—Length 78 inches, overall width 23 inches, height 28 inches, weight 625 lbs.

The rototiller is the most unique of modern farm implements easily adaptable in the Philippines which is composed of small unit farmers. It is economical, the price per unit of which, landed in the Philippines, according to their representative here, ranges from P700 to P1,500. Maintenance of even the biggest unit is cheaper and less back-braking than the care a carabao requires.

The parts and accessories are cheap and there is a constant supply. The rototiller has accesories for plowing, harrowing, furrowing, hilling, accessory to cut grass and lawn mower, power trailer to haul grass, stone, produce; can be converted into a power plant for running a small pump, churns, etc. In the States, the uses are so varied that they are used by gardeners of vegetables, flowers, etc., also by athletic groups to level track in athletic stadiums, tennis courts, etc.

In the Philippines it would probably be very adaptable to upland rice cultivation, gardeners, etc. For lowland rice where irrigation is controlled, it may prove to find itself a big blessing. Of course this is conjecture, as the rototiller has not been tried yet in the Philippines but we hope within this year to find it in some of our progressive farms.

HOME AND WOMEN'S CORNER

NEW DEVICES FOR THE HOME

Joseph M. Guilfoyle, writing in the Wall Street Journal, described some of the new products which have been designed to ease the drudgery of housekeeping. These products, although not in production at present, have been perfected and are only awaiting completion of reconversion operations and receipt by the manufacturer with which to make them.

Continuing, Guilfoyle wrote:

"One of these new products will be an "elevator" type kitchen cabinet, making it as easy to get dishes off the top shelf as the bottom one. It should be a boon to the short housewife who cannot reach the upper altitudes of her cupboard without standing on a chair. The cabinet is hydraulically operated, the power coming from water in kitchen pipes. All the housewife has to do to bring the shelves down to arm level is to press a button. Another button sends them back to their original position, above eye level, when she is through.

"A dish washer that does just about everything but take dishes off the table will be Westinghouse Electric's contribution to the postwar kitchen. With the push of a button it fills with water, washer and rinses the dishes, drain dirty water out of the machine and then shuts itself off.

"Unit kitchens have been developed by several firms. These are compact cabinets which include not only closet space but also a sink, range, refrigerator, vegetable storage, an oven and bread board. One model now ready for production looks just like an ordinary range, with the exception that it is about half as wide... on one side is the range and oven; the center includes the sink, storage bin and compressor compartment. The other side has the refrigerator compartment, the vegetable storage bin, and a drawer to be used for miscellaneous items.

"Another model has an oven at about eye level height with a glass door so the housewife can see how the cake or meat is coming along.

"Still another reduces a refrigerator to a set of drawers, each with its own temperature control for different sorts of food and drink.

"Smaller refrigerators are on the way, too. Industrial designers and manufacturers are busy shrinking the size of compressor (the cooling units) to about a third of the present size. Designers say that smaller compressors, together with war-born insulating materials, will enable manufacturers to reduce the size of cabinets by fifty per cent without loss of interior space.

"Electric ranges will have new talents, too. One has a pressure cooker built right into it, where the burners are located. The maker of this item hopes to have his dream in production later this year.

"Ranges will also be automatically controlled. The cook will be able to place meat in the oven and forget about it. When the meat is done, the oven will shut itself off.

"Electric clothes driers will ease the housewives chores. In one model, drying is done by constant movement of warm air through the cabinet. The clothes will be dampdried in about sixty minutes and completely dried in ninety minutes.

"To make ironing easier, at least one manufacturer has a lightweight aluminum iron which may get into production sometime this year."

COOPERATIVE ...

(*Continued from page* 11)

2. Unirrigated rice Land: Planting season June—Aug. Harvesting season November to December	Ampalaya	Nov.-Dec.	March-May
	Camote	" "	March-April
	Condol	" "	" "
	Corn	" "	Feb.-March
	Cucumber	" "	Feb.-April
	Eggplant	" "	" "
	Mungo, Soybean, Kibal, Pea, Etc.	" "	Jan.-May
	Muskmelon	" "	Feb.-March
	Mustard	" "	Jan.-Feb
	Peanut	" "	March-April
	Pechay	Nov.-Dec.	Jan.-Feb.
	Radish	" "	" "
	Squash	" "	March-April
	Talinum	" "	Jan.-Feb.
	Tomato	" "	March-April
	Upo	" "	" "
	Watermelon	" "	May-June
3. Upland rice land: Planting season April to July Harvesting season August to November	Ampalaya	Aug.-Sept.	Dec.-Feb.
	Camote	" "	Dec.-Jan.
	Condol	Oct.-Nov.	Feb.-March
	Corn	" "	Jan.-Feb.
	Cucumber	" "	" "
	Mungo, Soybean, Kibal, Pea, Etc.		Dec.-April
	Peanut		Feb.-March
	Squash	Sept.-Oct.	Jan.-Feb.
	Tugui	Aug.-Sept.	Feb.-March
	Ubi	" "	" "
	Upo	Oct.-Nov.	" "

(*Continued on page* 19)

MARCH OF EVENTS

TOKYO, Feb. 6 (UP). — Eggs did stand in Tokyo in the mystic hour of "Lih Chun," the beginning of spring by the Chinese lunar calendar, and Japanese morning papers today heavily juxtaposed the United Press story of the phenomenon with photographs of eggs standing upright.

None of the eggs could be made to talk. The experiment cost a group of Japanese editors mainly a lot of sleep because the auspicious hour worked out at 0045 (Tokyo time), one second after the city's transportation system had stopped for the night.

This aroused a little debate of its own since the Japanese "Rishun" — beginning of spring—officially gallops in at 0051, early in the morning of Feb. 5.

Some people just could not figure how the Chinese god of fortune could be so bounteous in goodwill. One of the more hard-boiled from the Kyodo News Agency's photographic department said there was nothing to the feat at all. He added that as a matter of fact setting up eggs is one of his favorite tricks at geisha parties, and he does this practically with no regard for the season.

Eggs, however, kept rolling over at first and began to balance more obediently as the Chinese bewitching hour approached. On the dot at "Lih Chun," 10 eggs were vertically balanced on top of a glass plate which the experimenters used, and then more stood on desk tops and on the floor.

They were left standing and the test was so impressive that practically no one suggested scrambled eggs for breakfast.

To cover the subject of eggs thoroughly, Kyodo News Agency distributed a story this morning saying that among all the current blackmarket wares eggs stand highest. It said that on the basis of the government price board's conservative index, eggs are now at 206.6 compared with 100 for Feb. 8 last year.

———oOo———

President Roxas is preparing an executive order providing for the temporary suspension of the current ban on the importation of cattle and other livestock into the Philippines, it was learned on good authority.

This order is designed to alleviate the present serious shortage of livestock used for farming, breeding and consumption purposes. It will be recalled that more than half the animal population of the country was lost in the past war.

The proposed order, a draft of which has been completed by Secretary of Justice Roman Ozaeta, will lift temporarily the prohibition imposed by Act 3155 and Section 1762 of the Revised Administrative Code. It will allow the free entry of livestock subject to quarantine regulations and under the supervision of the department of agriculture and commerce.

———oOo———

WASHINGTON, Feb. 7 (AP). — More than 17,000,000 yards of badly needed cotton textiles soon will be flowing toward the Philippines from Japan, the commercial division of the Philippine embassy said today.

Through the United States commercial company, the Islands obtained a portion of textile stocks found in Japan at the beginning of the occupation. A Philippine steamer is scheduled to leave the Islands soon for Japan to acquire materials which will be sold to the Islands' public by the Manila government.

The embassy indicated it had arranged to procure additional amounts of Japanese made texfiles from mills presently operating with American cotton. The embassy indicated the Islands' prewar imports of Japanese textiles approximated 45,000,000 yards and the embassy is hopeful of obtaining a large percentage of this amount as Japanese production expands.

China, the Netherlands East Indies, Burma, Malaya and India are also understood to be obtaining portions of Japanese textile stocks.

———oOo———

By MORRIS HARRIS

WASHINGTON, Feb. 6 (AP). — The agriculture department believes Philippine tobacco production and manufacture will be among the first island industries to recover and regain their prewar prominence. Even these, however, will be hampered and delayd for various reasons said Claudia Thomson, agriculture economist, in a survey of the Islands' tobacco industry.

Thomson added "although the tobacco crop can be grown in about three months, at least one or two years are required for the proper curing of the leaf for use in the manufacture of tobacco products. Large quantities of baled tobacco were known to be stored in many prvoinces, especially Cagayan valley, at the beginning of the war. However, about 70 per cent of that stored in Cagayan valley were lost during the war leaving an estimated 15,000,000 pounds and disrupted transportation has made it impossible to bring much of the remaining leaf for immediate use."

Prospects for immediate restoration of the islands' tobacco crop, Thomson said, is dark. She said "the planted acreage for the years 1945-1946 will only be one half of the prewar acreage or 86,000 acres, because the Japanese were not driven from Cagayan valley until near planting time. Work animals were killed during the war and curing houses were destroyed.

"While enterprising research and experimental work has been done by the island's agricultural experimental stations," Thomson said, "the weak point seems to be that little practical application has been made of this information by growers, especially those who need it most. It has not been carried to them individually. The task up to the present is apparently too complicated for government officials to accomplish."

Before the war, the Philippines shipped considerable quantities of cigars to the United States—shipments averaging an estimated five per cent of all class A, tax-paid cigars consumed in this country.

———oOo———

Many mayors, municipal councils and residents of municipalities are under the wrong impression that once their communal forests are disestablished or suspended, the residents can cut timber for their personal use in any public forests free of charge and without permit, it was learned from the bureau of forestry.

The bureau desires to call the attention of the public that in all cases, permit is necessary to cut timber even for personal use. In the case of established communal forests such permit, except for the cuttnig of first group timber, is issued free of charge by the respective municipal mayor so authorized by the director of foresrty.

In the case of first group timber from communal forest and all other kinds of timber for personal use in any other public forests, the permit is issued by the director of forestry only upon submission of the required application

(Continued on page 17)

WITH OUR CROPS

CYTOX

50% DDT WETTABLE POWDER

A Dry Powder Completely Dispersible Water

CYTOX WETTABLE POWDER contains 50% DDT intimately mixed with spreaders and an inert diluent to give excellent wetting and suspension in water. It has been developed for use in spraying operations to control such insects as codling moth, gypsy moth, tent caterpillar, leafroller, Japanese beetle, Colorado potato beetle and thrips and also, flies and ticks on animals and in barns.

Mixing and Spraying

CYTOX WETTABLE POWDER COMES conveniently packaged and ready for addition to water in the spray tank. It may be washed through the screen while agitator is running, or mixed with a small amount of water in a separate container, before adding to the tank. Agitation should be maintained during spraying to insure complete dispersion.

No additional wetting agent should be used except on particularly hard to wet plants. Spreaders and stickers such as in or blood albumen can be used where desirable. Cytox wettable powder can be used with supplemental insecticides such as nicotine, sulfate, lead arsenate, oil emulsions, dinitro materials and others. It may also be used with fungicides such as Bordeaux, wettable sulfur, neurtal coppers and organic materials. When using with Bordeaux, CYTOX WETTABLE POWDER should be added to the tank last as a thin paste. When oil is used add the CYTOX WETTABLE POWDER first and the oil last.

CYTOX WETTABLE POWDER should not be used with hydrated lime or bentonite.

Recommended Uses

NOTE: The suggestions given herein are based on field experiments conducted with DDT by the U.S. Bureau of Entomology, State Experiment Stations and other entomological authorities. The dosages recommended, as well as the plants on which DDT may be safely used, are subject to change depending upon further experimental work and experience through commercial use. Consult your local entomological authorities in respect to the proper use in your locality under specific conditions.

Some of the more important insect pests which CYTOX WETTABLE POWDER will control are given below. In most instance CYTOX WETTABLE POWDER has proven superior to the standard control measures formerly used.

Grapes — Grape leafhoppers, grape berry moths and rose chafers can be effectively controlled by spraying with CYTOX WETTABLE POWDER at 1-1|2 to 2 pounds per 100 gallons using 150 — 175 gallons per acre.

..Potatoes — CYTOX WETTABLE POWDER is very effective for the control of all the important insect pests of potatoes including leafhoppers, flea beetles, potato beetles, aphids, psyllids and tarnished plant bugs. The lasting effect of this material not only kills the insects on the plant but also insects migrating into treated fields for a considerable time after application. CYTOX WETTABLE POWDER should be used at the rate of 1-1|2 to 2 pounds to the 100 gallons spraying 100 or more gallons per acre. It may be incorporated with the regular fungicidal sprays whenever necessary.

..Cabbage — For the control of cabbage worms, and harlequin bugs spray with CYTOX WETTABLE POWDER at 1-1|2 to 2 pounds per 100 gallons applying about 100 gallons per acre. Five applications at 2-week intervals give excellent control.

Onion Thrips — Use 1 to 2 pounds per 100 gallons and apply 150 gallons per acre.

According to present experimental evidence DDT sprays should not be used on corn, tomatoes, or cucurbits such as squash, cucumbers and melons.

Apply—CYTOX WETTABLE POWDER has been proven very effective for the control of the codling moth and materially reduces aphid populations on apple trees. The recommendations for apple spray programs vary according to climate and the number of broods. In general, however, CYTOX WETTABLE POWDER should be substituted for lead arsenate in the standard program after the calyx spray using 2 pounds in 100 gallons of spray.

Under severe codling moth conditions, use CYTOX WETTABLE POWDER at 2 pounds per 100 gallons 3 or 4 first brood cover sprays and two second brood sprays. Where conditions are light or moderate apply one second brood spray.

CYTOX WETTABLE POWDER may be used with any of the common fungicide sprays used on apples. The use of a summer spray oil at 1 quart to 100 gallons is recommended to make the spray deposit stick longer.

Ornamentals — Trees, shrubs, and flowers are effectively protected from such insects as Japanese beetles, tent caterpillars, rose chafers and others by spraying with CYTOX WETTABLE POWDER AT 1-1|2 to 2 pounds per 100 gallons (1 heaping teaspoonful per gallon). Where protection is needed for long periods of time add 1 pint of fish glue solution per 100 gallons.

Forest and Shade Trees — CYTOX WETTABLE POWDER controls gypsy moths, tent caterpillars, bud worms Japanese beetles, green striped maple worms, red-headed pine sawflies and others. Use it at the rate of 1-1 2 to 2 pounds per 100 gallons plus 1 pint of fish glue solution.

Control of Flies in Dairy Barns and Stables

For control of flies in dairy barns and s tables, CYTOX WETTABLE POWDER should be used at the rate of 2 pounds per 10 gallons of water or about 2 to 3 ounces per gallon, applying 1 quart to 100 sq. ft. of surface. Walls, ceilings and rafters should be sprayed with the water suspension until surfaces are just wetted, using a garden sprayer, bucket pump or power sprayer. Feeding troughs, feed or hay which may be licked or eaten by animals should not be sprayed. Hay and other feeding materials should be covered during spray applications. Additional applications may be made depending on the length of the fly season and the type of surface to which the material is applied. Porous or unpainted surfaces absorb more material than smooth or painted surfaces.

Control of Insects Affecting Cattle

1. *As a Spray*

   For control of horn flies, stable flies and cattle lice, use at the rate of 1-1|2 to 2 pounds per 10 gallons, applying 1 quart per animal. Repeat applications may be necessary depending on the length of the fly season.

WITH OUR GOVERNMENT

WHY WE ARE ALWAYS SHORT OF RICE

By: R. R. DE ARANA

The shortage of rice in the Philippines has since been a problem unsolved. Year after year, suggestions on extensive campaign for greater production of rice are made, like for instance, cultivation of more rice lands, selection of seeds for better production, more irrigation systems constructed, etc. But there is one phase of the rice industry which is overlooked. It is the milling. The solution of the rice shortage problem could be found here also.

It is a known fact that there are in a cavan of palay 14 gantas of rice unpolished, out of which 12-1 2 gantas are dervied when polished. This production is obtained by the cone type rice mill. But there are some 8,000 of the so-called rice mills (kiskisan) which are very wasteful. In view of their wasteful qualities they may properly be called "Mechanical Locusts". These "mechanical locusts" recover only 9 gantas of rice from a cavan of palay so that out of the actual 12-1|2 gantas 3-1|2 gantas are wasted. 3-1|2 *gantas of rice are actually wasted from every cavan of palay milled by these "mechanical locusts".*

The Philippines is estimated to produce some 57,000,000 cavans of palay per year. It is assumed that 75% of this palay, or 42,000,000 cavans, is being milled by these "mechanical locusts". At the rate of 3-1|2 gantas of rice wasted from every cavan of palay these "mechanical locusts" waste some 6,212,000 cavans of rice per year. While this enormous quantity of rice is being wasted the Philippines keeps on importing rice.

The estimated production fo 57,000,000 cavans of palay per year if properly milled, will give about 32,000,000 cavans of rice (57 kgms. or 23.5 gantas to the cavan). This can only be obtained through milling in the cone type rice mills. As there are in the Islands only about 500 mills of this type at present in operation, more mills should be installed to adequately take care of the whole production.

Since before the war, the local importers of cone type rice mills discontinued importing this type. Most of them turned to selling the locally manufactured cone type rice mills which proved to be of better quality and cheaper. At present, the local manufacturers have not yet resumed their full capacity production in view of the present unstable business operations, scarcity of materials, and if available, the prices are sky high. Inadequate capital is also another reason.

There is at present in the Philippines an army of more than 8,000 "mecanical locusts". Some are still in bodegas, and more are expected to arrive. The combined daily milling capacity of these "mechanical locusts" is estimated at 800,000 cavans of palay. In every cavan of palay they waste 3-1|2 gantas of rice. Their daily waste therefore reach over 122,000 cavans of rice. Placing a price of at least P25.00 per cavan, the money value today of these 122,000 cavans reaches the staggering sum of P3,000,000.00. Every day that these "mechanical locusts" operate the Philippines is losing over 122,000 cavans of rice valued at about P3,000,000.00! This is about 3|4 of the daily consumption of rice in the entire Philippines!

We urge the government to ban the use of rice mills which are wasteful. We suggest that the government form a group of rice mill inspectors to examine all rice mills and to cancell the licences of wasteful ones. These inspectors may be under the Naric or under the newly formed Rice and Corn Corporation.

We suggest that the government encourage and help financially, local manufacturers of cone type rice mills for they are the ones who really know the problem of saving rice in the process of milling.

"J. Bernabe and Company," a local manufacturer of cone rice mills is one of the progressive Filipino Manufacturers and should be encouraged and helped by the government financially to expand. If the aim of the administration is to develop the country industrially, this could be a starting point in the government's efforts to industrialize the country.

J. Bernabe and Company, now with factories at 1515 Juan Luna street, was manufacturing cone type rice mill as early as t w e n t y - f i v e years ago. Jose Bernabe, its proprietor, out of his own genius and industrious hands made the first mill with a helper and sold it. Then out of his earnings he continued making his mills.

When imported cone type mills arrived here he challenged the importers as to the performance of the imported ones cannot have as high a perported ones. He made a bet that the imcentage of recovery as his mill. No importer took up his bet.

However, around 1935, Smith and Overly and Company, a big importer here of rice mills entered into an agreement with Mr. Bernabe to distribute his cone type rice mills. Smith Bell and Company, followed suit and also distributed for Mr. Bernabe since 1939. Fred Wilson and Company, also came along and distributed Bernabe's rice mills as early as 1937. Not to be outdone, Internatoinal Harvester and Company in 1939, also recognizing the quality of the Bernabe Cone type rice mill, started distributing for him.

Since the independence of the Philippines on July 4, 1946, Mr. Bernabe thought of distributing his product himself although wonderful offers of big American firms have been proposed to him to incorporate his company with the guarrantee that he would always own 51% of the company. He has not considered any offer so far.

For the present, Bernabe and Company has a standing order of over half a million pesos worth of rice mills from all over the Philippines. People who have bought from the above mentioned American Companies who used to distribute for him, now come directly to him. Included among those who have placed orders with him now are Atlantic Gulf Company, Smith Bell and Company, big hacenderos, etc.

Mr. Bernabe needs capital. Not for the manufacture of the mills to meet his orders. He needs capital so that he could give his customers easier terms to pay. He proposes, not only to sell on installment basis as he is now doing, but to sell at the lowest price per unit and to allow future mill operators to be able to pay the mill out of its earnings. He wants to see Bernabe Mill to pay for itself for the owner.

For the present he cannot give those terms as he will run short of capital. But it is voice of men like Mr. Bernabe that the government should not allow to drown among the multitude of noises clamoring for government aid.

WITH OUR TENANTS

(EDITORS NOTE)

(Letter of Dr. Santiago R. Cruz published in the world famous technical journal "Agricultural Engineering", published and owned by the American Society of Agricultural Engineers.
We are fortunate in getting hold of a copy of the publication and we are here reprinting it.
The opinion of Dr. Cruz in relation to mechanization in the Philippines has attracted American serious thought).

GARDEN TRACTORS FROM AMERICA MAY STOP A CIVIL WAR IN THE PHILIPPINES, PRESERVE WAR-SHOCKED SOCIAL STRUCTURE
Filipino Ag Engineer Sees Loss of Carabao as Chance to Modernize Old Art of Paddy Rice Culture, Continue its Conservation of Soil

Shortly before the Japanese attacked his home islands at the outset of the Pacific war, Santiago R. Cruz went back to the Philippines. He had been here in the States for several years, and had earned a Ph D degree from Corneil University. After lapse of the war years he recently revived his rudely interrupted membership in the American Society of Agricultural Engineers, and one of his letters was deemed of such interest as to call for publication in the Society's technical journal, AGRICULTURAL ENGINEERING. Shortened slightly from its appearance in the January, 1947, issue it reads:

"I am managing a large family corporation dedicated to diversified farming. I am about to order a few units of garden tractor. Several of my friends, who knew of my plans, discussed the possibilities of garden tractors in the Philippines, and we emerged from our discussion awed by its vast possibilities.

"The carabao, the backbone of our primitive agriculture, and probably the remote cause of much misery and trouble in our rural areas, was almost wiped out by the exigencies of the last war. If we could adapt the garden tractor to our paddy rice culture, we could make use of tens of thousands, if not hundreds of thousands, of this machine to replace our carabaos. It could also modernize (make more efficient and less laborious) our rice culture without radically discrupting the social set-up based on it, and without abandoning its most redeeming feature—almost perfect soil erosion control by the use of terraces.

"If we succeed in this project, American machines will find an eager market. Personally I do not believe our rice culture could be mechanized extensively by the use of the common tractor and agricultural implements, except in irrigated areas. Even at that, varieties would have to be changed or developed and soil erosion control, even with contour farming, would be most difficult to accomplish with our long torrential rains.

"Also, nobody knows what to do with the unnecessary farm tenants and hands that would be displaced by the big machines, because we are far from industrialized. At the present writing, many lives are being lost in a minor civil war raging in our central plains, the center of rice production by carabao power, over who should get the larger share of the crop—the landlord or the tenants.

"With the use of the garden tractor if we could use it—and I think that with some experimentation we could—the only change to be made would be from carabao to garden tractor. It is about three to four times more efficient than the carabao, costs about the same at present, and, most important, the carabao has to be fed the greater part of the year, while the garden tractor does not."

———oOo———

CYTOX... (*From page* 15)

2. *As a Dip*

Use at the rate of 3 pounds per 100 gallons of water for control of cattle lice, goat lice and sheep tick. Make a thin paste with the CYTOX WETTABLE POWDER and water in a separate container before adding to the total volume in a dipping vat. Repeat applications as necessary.

Advanages of CYTOX WETTABLE POWDER

Standardized — CYTOX WETTABLE POWDER contains 50% DDT-Technical

Easy to Use—Completely wettable and easily dispersible

Effective — A wide variety of insects may be controlled with the spray.

Compatibility — Compatible with many other insecticides and with several common fungicides.

Precautions

DDT is poisonous to animals and man, and should be carefully handled. CYTOX WETTABLE POWDER should not be stored near food or feeds or where children and animals might get into it. After working or spraying with it, wash the hands thoroughly with warm water and soap.

Store preparations containing DDT out of the reach of children.

Edible food crops should not have excess residues of DDT at harvest time. This may be avoided by not applying sprays during the period just before picking time.

DDT has been found to injure cucurbit plants such as cucumbers, squash and melons. CYTOX WETTABLE POWDER, therefore, should not be used on these crops or on corn or tomatoes.

———oOo———

MARCH... (*From page* 14)

and payment of the necessary license fee.

The public is advised to comply with this requirement in order to avoid being penalized in accordance with forest and internal revenue laws and regulations.

Different Topic Marked

Great possibilities for the production of drugs in the Philippines, both for local consumption and for export, are being largely overlooked in postwar planning, according to Dr. Mona Lisa Steiner, an outstanding botanical authority who now lives in Manila.

Dr. Steiner, who is now exporting considerable quantities of fare Philippine orchids by air to orchid fanciers in Hawaii and the US mainland, lists a dozen or more important medicinal plants either indigenous to the Philippines, or which thrive here. None of these are now cultivated commercially.

Heading the list are coca and cinchona trees, from which cocaine and quinine are derived. Conditions in many parts of the archipelago are ideal for their culture. Production of castor oil beans could become an important export industry.

Other medicinal plants which could certanly supply all all Philippine needs and eliminate the present reliance on imports, include mint datura stramonium which is useful against asthma, strychnine, cinnamon, derriselliptica from which the miportant insecticide derris root is obtained, cinnamon, eucalytus, agar agar, rue, citronella, balsam and basilicum. These constitute only a partial list.

Dr. Steiner is advocating test-plot planting of these drug-producing bota-

(*Continued on page* 18)

MARCH... (*Cont. from page* 17)

nicals by the government and by farmers generally all over the islands. The former Vienna botanist points out that small plots grown by farmers could provide an important addition to present farm incomes, and would promote diversification of corps to supplement the present one-crop economy.

The processing and extraction of drugs from the botanicals would fit in admirably with plans for post-war industrialization of the Philippines, it is pointed out. Small capital outlay would be necessary to establish the processing plants.

The industrial possibilities of many other non-medical crops suitable for culture in the Philippines have also been largely neglected, Dr. Steiner observed.

Among these she noted palaquium gutta, source of gutta percha, which is short in supply in the world, tea, coffee, cotton and rubber. The African oil palm has shown great possibilities, and has already been successfully cultivated in Mindanao and Batangas.

———oOo———

By MARTINIANO FLORO
Chief Engineer, National Coconut Corporation

Many people say that the coconut has uses other than copra and desiccated coconut. This is true. Science has proved that there are big commercial possibilities in the new technology of coconut oil from fresh meat, food products from by-products of coconut oil, and construction materials from coconut husks.

The NACOCO has prepared a detailed program of industrialization for the coconut industry. The coconut Planters' Association can execute this program better than the government.

Here is what the association should do. Raise by voluntary contribution P400,000, half of which should be invested in a model coconut industrial plant and the other half in a modern research laboratory and a complete pilot plant.

The industrial plant, which might start operations by manufacturing desiccated coconut products and coir fiber, should have a capacity of 10,000 nuts daily and produce a minimum of 1.500 kilos of desiccated coconut and 500 kilos of fiber. It should desiccate coconut in the most modern way and coconut in the most modern way and separate coir fiber from coir dust.

Desiccated coconut has a big demand in the United States, where it commands a price three times higher than that of copra. Coir fiber has a big demand locally and also abroad.

The research laboratory is necessary to carry on research work on the coconut and its by-products. The commercial feasibility of coconut products will be tested in the laboratory, then in a pilot plant. If found profitable, the product will be added to the activities of the industrial plant. In this manner, the industrialization of the coconut will be pushed little by little, at the same time increasing its source of income.

Cooperation between the members of the association and the scientists who direct operations in the industrial plant and in the laboratory will result in these advantages:

1. Greater income for palnters on account of the fact that by-products will acquire commercial value.

2. Stabilization of coconut prices, as dependence on foreign markets will be eliminated.

3. More employment for people.

4. Lower cost of goods such as lard, soap, food products and construction materials.

5. Decrease in Philippine importation of foodstuffs.

But how is the required P400,000 going to be raised?

Before the war, about 400,000,000 nuts were harvested yearly. By collecting one centavo for every 100 nuts were ing one centavo for every 100 nuts gathered by each individual plantation owner throughout the country, the amount required will be garnered. Results will be more favorable if one-half centavo will be collected for every fruit-bearing three. Some 84,246,477 trees were registered as fruit-bearing in 1939.

Now is the best time to industrialize the coconut; prices are good. Coconut planters have more cash to spare now than during the years immediately before the war.

The industrialization program should be executed along the following general lines:

1. Study possibilities of coco-lard and coco-margarine production from coconut cream; refined oil and food products from coconut milk; and construction materials from coconut husks.

2. Acquire modern machinery and continue research work on all production aspects.

3. Train technical men.

4. Adopt modern labor methods.

It seems obvious that every centavo invested in this enterprise will acquire a permanent income equivalent to the value of 100 nuts. The profits in prospect are extremely big in comparison with the investment.

Two scientists Sunday reported the development of a new radiation method which preserves foods in one millionth of a second and "eliminates" some cancer in animals. The two are doctors Arno Brasch and Wolfgang Huber of the research staff of the Electronized Chemicals Corporation of New York.

Most rays, including X-ray, sterilize and preserve but have damaging effects upon materials. The scientists decided most of these damaging effects are cumulative. If a high-powered dosage could be fired into a substance at terrific speed, they decided the damaging effects might be avoided.

Writing in the *Journal* science, they reported they bombarded tissues of food and microbes with electrons, the negatively-charged particles of atoms. They listed results:

(1) Foods were preserved in a fresh, raw state in one millionth of a second without becoming radioactive. Steaks, eggs and sea foods were kept perfectly for twelve days at high temperatures after being treated. Thus, the process appears to be a new method for wholesale preservation of foods that is now canned, frozen or dehydrated.

(2) Cancers were "eliminated" in rabbits.

(3) Contaminated blood plasma, whole blood, diptheria antitoxin, penicillin, fluid milk and meat were purified. Tremendously fast bursts of electrons were sufficient to kill microbes but did not damage the substance that harbored them.

Only a tiny blast of electrons is necessary, the scientists said, because their intensity is one-half million to one billion times that of X-ray and they penetrate deeper.

The progress, they said, "will not materially increase the cost of the treated product" in large operations.

MECHANIZED...

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vesters and combines.

In the second place, the men who will manage these tractors in the field will have to be trained in the operation of tractors and their accessories, as well as in the efficient utilization of these machinery in different farm enterprises. There may be enough men available who can run tractors or repair them, but the same people have not had any experience in the farm management aspects of agricultural machinery. The timing of operations, the proper type of equipment to use, and the proper use of such equipment under different farm conditions and in various enterprises on the farm

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TABLE 2. Planting Season of Vegetables

KIND	Maturation Period	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Ampalaya	150			X	X	XX	XX	XX	X	X	X	X	X
Batao	180					XX	XX	XX	X	X	X	X	X
Beans, bush	60-75					X	X	X	XX	XX	XX	XX	X
Beans, pole	60-90					X	X	X	X	XX	XX	XX	X
Beets	90	X									XX	XX	XX
Cabbage	100-110					X	X	X	X	XX	XX	XX	XX
Caguios	120					X	XX	XX	XX	X	X		
Camote (greens)	60					XX	XX	XX	XX	X	X	X	X
Camote (tubers)	120-160					XX	XX	XX	XX	X	XX	X	X
Carrot	75-160	X								X	XX	XX	XX
Cauliflower	75-150	X								X	XX	XX	XX
Celery	90-100	X									XX	XX	XX
Chayote	120	X				XX	XX	XX	XX	X	X	X	X
Corn (sweet)	90			X	X	XX	XX	X	X	X	XX	XX	X
Cowpeas	150	X				XX	XX	XX	X	X	XX	XX	X
Cucumber	120					XX	XX	X	X	X	XX	XX	X
Eggplant	120	X				X	X	X	X	XX	XX	XX	XX
Gabi	140-180					XX	XX	XX	X	X	X		
Garlic (greens)	20-90	X									XX	XX	XX
Garlic (sets)	90-150	X									XX	XX	
Ginger	270					XX	XX	XX	X	X	X		
Kangkong	60					XX	XX	XX	X	X	X	X	X
Lettuce	40-50	X				XX	XX	X	X	X	XX	XX	XX
Mustard	40-50	X				XX	XX	XX	X	X	XX	XX	XX
Okra	90-100				X	X					XX	XX	XX
Onions (greens)	60-90					X	X				XX	XX	XX
Onions (bulbs)	90-105										XX	XX	X
Patani	210-240					XX	XX	XX	X	X	X	X	X
Patola	150					XX	XX	XX	X	X	X	X	X
Peas	40-80					X	X	X	X		XX	XX	XX
Pechay	40-50	X				XX	XX	X	X	X	XX	XX	XX
Pepper	90-150	X				XX	XX	XX	X	X	XX	XX	XX
Radishes	60-90	X				XX	XX				XX	XX	XX
Seguidillas	150-180					XX	XX	XX	X	X	X	X	X
Soybeans	110-140					XX	XX	X	X	X	XX	XX	XX
Sitao	120					XX	XX	XX	X	X	X	X	X
Squash	120					XX	XX	XX	X	X	X	X	X
Talinum	40-50	X	X	X	X	XX	XX	XX	XX	X	X	X	X
Tapilan	120	X				XX	XX	XX	X	X	XX	XX	XX
Turnips	100-140	X	X								XX	XX	XX
Tomatoes	60-80					XX	XX	X	X	X	XX	XX	XX
Upo	100-150									X	XX	XX	XX

X—With less frequency.
XX—With greater frequency.

EDITORIAL

FARMING AND SCIENCE

Farming practices in the Philippines will find its own identification with science along up-to-date farming practices in the States in the very near future. Our farms cannot and will not bring prosperity unless the science neccessary to make it prosper is applied as is done in more advanced countries.

Development of farming in the United States along scientific practices did not gain momentum until only about twenty-five years ago, according to an American authority. Farming before that time was also slovenly and farmers looked suspiciously on anything new in farming practices until young men of America who had courage, government extension service men who had patience, showed the way by initiating new things themselves in rural places in the States.

The development of the corn strain, wheat strain, garden crops, poultry, piggery and dairy in the States to such massive and commercially successful state, did not really start with the American Independence. Then, they had the same fears as we have of floods that wash their corn and wheat fields, the dying of vegetable crops by the hundred tons in a day due to insect pests and diseases, their pigs and poultry being wiped out by pests, their cattle dying by the thousands due to rinderpest in a very short period. But the courage of American Science has conquered all these in time.

Today, cereals, vegetables, fruit trees, poultry, piggery, and dairy are under scientific control in America. Farming has assumesd the stature of exact science. Practically all ills of plants have their remedies. Soil fertility is scientifically conserved. Desired results in breeds of fowls, pigs, cattle, horses, etc. are, from the farming point of view, obtained and is commercial knowledge.

This is so because the problems have not been few. If there is any broad subject, it is agriculture. It is this tremendous scope of agriculture that became the driving force to American effort to such enthusiasm and intensity that made American agriculture what it is today.

We find in the United States of America an ideal and an example. Our brain and brawn and courage and initiative is the only answer.

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experience will still have to be provided the field personnel—and all these take some time. Thirdly, technical farm management under mechanized farming methods is something new in the Philippines. Its full grasp by the managers or superintendents of the farm projects provides the key to successful and efficient mechanized production. Unless technical men with some experience are put in charge of the projects to be undertaken, mechanized agriculture as conceived in the Commission's report to the President is bound to fail. In other words, to ensure a minimum degree of success in the mechanized projects under consideration the best men available in farm management and operation will have to be employed and put to work in this production program.

Last, but not least, the Administration will have to deal with the usual slowness with which cooperating government agencies operate. Time is of the essence of mechanized production, and mechanized agricultural production is no exception to the rule. Unless the necessary equipment are provided on time and the seeds are made available by the agencies concerned when these are needed, and unless the requisition for materials are filled at the proper time, then the field operations utilizing mechanized equipment will meet with failure. The essential thing is to match the facility with which the Administration will handle the mechanized aspects of farming with the same speed and dispatch on the part of cooperating government agencies in providing the assistance or the materials that are needed by the people in charge of getting the projects under way. The principal solution to these problems lies in whole-hearted cooperation from all agencies involved, together with an understanding and appreciation of the necessity for proper timing of the field operations.

Our Government, desiring to facilitate the opening up of several projects as soon as possible, has placed the rice and corn production program under the National Development Company. Buenaventura C. Lopez, Executive Secretary of the Rice and Corn Production Commission, was put as Officer-in-Charge. The initial effort is to get the pilot farm of about 2,000 hectares in the Sabani Estate in Nueva Ecija into full operation early this year. If sufficient agricultural machinery and equipment will become available, a 10,000-hectare project will be opened sometime this year. Preparations are now under way to start field operations before the rainy season begins.

It is to be expected that this initial attempt in farm mechanization, as envisaged by the Rice and Corn Production Commission and approved by the President, will give the necessary impetus to large-scale mechanized production, not only of the principal food crops, but also of the mainstays of Pihlippine agriculture. The success of the present enterprise will bring all the incentives and the encouragement essential to the realization of extensive mechanized farming in this country.