



ISSN 0117-5297

BSU RESEARCH JOURNAL

No. 60 and 61

September and December 2008

TABLE OF CONTENTS THESIS GRANTEES

College of Arts and Sciences

- AGRI-ECOLOGICAL APPRAISAL OF TRADITIONAL RICE-BASED ECOSYSTEM: THE KAPANGAN EXPERIENCE** 1-17
J. B. Ingosan, J. R. S. Labaro, J. A. L. Sally, R. A. Gomez, Jr.

College of Forestry

- POINTS OF POLLUTION OF THE CHICO RIVER IN BONTOC, MOUNTAIN PROVINCE AS PERCEIVED BY THE RESIDENTS OF BRANGAYS BONTOC ILI, POBLACION BONTOC, CALUTTIT AND SAMOKI** 18-33
A. F. F. Diaz, W. T. Wacangan

- FERN DIVERSITY STUDY OF THE MOSSY FOREST REMNANTS OF THE BSU AGROFORESTRY PROJECT, BEKTEY, WANGAL, LA TRINIDAD, BENGUET** 34-57
R. A. Mulang, J. Tacloy

College of Agriculture

- THE ISRAELI DAIRY FARMING: A DOCUMENTATION** 58-73
B. A. Wallang, M. B. Walsiyen

- MANIPULATING NITROGEN RELEASE FROM ORGANIC FERTILIZERS AS AFFECTED BY ORGANIC BIOLOGICAL WASTE IN SOIL** 74-98
M. A. C. Tuba-ang, C. P. Laurean

- DOCUMENTATION OF THE EDIBLE INDIGENOUS MUSHROOM VARIETIES IN SABANGAN, MOUNTAIN PROVINCE** 99-108
E. W. Tingcawa, C. D. Abellera



BSU RESEARCH JOURNAL

No. 60 and 61

September and December 2008

ISSN 0117-5297

EDITORIAL BOARD

Editor-in-Chief:

Wilma L. Marquez

Technical Editors:

Percival B. Alipit
Ma. Klondy T. Dagupan
Johnny G. Dati
Carlito P. Laurean
Valentino L. Macanes
Julia A. Solimen
Luciana M. Villanueva

Lay-out Artist/Circulation Assistant:

Bryan T. Lidua

Editorial Consultants:

Sonwright B. Maddul
Vice President for Research and Extension

Rogelio D. Colting
University President



OUR COVER: Research and Extension Complex, BSU Compound, Balili Road, La Trinidad, Benguet

Photo by: Jamesly T. Andres, Office of Extension Services

Printing Press: CHG Tangib, 451 Upper Quarry, Baguio City



BSU RESEARCH JOURNAL

No. 60 and 61

September and December 2008

AGRI-ECOLOGICAL APPRAISAL OF TRADITIONAL RICE-BASED ECOSYSTEM: THE KAPANGAN EXPERIENCE

Junalynne B. Ingosan, Jane Rachelle S. Labaro, Judith Ann L. Sally and Romeo A. Gomez, Jr.

POINTS OF POLLUTION OF THE CHICO RIVER IN BONTOC, MOUNTAIN PROVINCE AS PERCEIVED BY THE RESIDENTS OF BARANGAYS BONTOC ILI, POBLACION BONTOC, CALUTTIT, AND SAMOKI

Aloha Freia F. Diaz and Vicente T. Wacangan

FERN DIVERSITY OF THE MOSSY FOREST REMNANTS OF THE BSU-AGROFORESTRY PROJECT, BEKTEY, WANGAL, LA TRINIDAD, BENGUET

Roxanne A. Mulang and John G. Tacloy

THE ISRAELI DAIRY FARMING: A DOCUMENTATION

Bart A. Wallang and Myrna B. Walsiyen

MANIPULATING NITROGEN RELEASE FROM ORGANIC FERTILIZERS AS AFFECTED BY ORGANIC BIOLOGICAL WASTE IN SOIL

May Ann C. Tuba-ang and Carlito P. Laurean

DOCUMENTATION OF THE INDIGENOUS EDIBLE MUSHROOM VARIETIES IN SABANGAN, MOUNTAIN PROVINCE

Emely W. Tingcawa and Cunegunda D. Abellera



AGRI-ECOLOGICAL APPRAISAL OF TRADITIONAL RICE-BASED ECOSYSTEM: THE KAPANGAN EXPERIENCE¹



Junalynne B. Ingosan², Jane Rachelle S. Labaro²,
Judith Ann L. Sally², and Romeo A. Gomez, Jr.³

ABSTRACT

The study dealt with the characterization of soil fertility, level of crop productivity, floral diversity assessment, and indigenous knowledge system and traditional rice farming practices in two of the few remaining traditional rice-based ecosystems, Sitio Gadang Proper, Gadang and Sitio Malagyao, Cuba, Kapangan, Benguet. The study revealed soil fertility was quite low in both sites since there was an alteration in rice farming practices. Floral diversity was observed to have considerable differences in the two ecosystem sites being composed since that in Sitio Gadang Proper, Gadang was undergoing the planting season while that in Sitio Malagyao, Cuba was in a fallow period. As expected, therefore, a generally more diverse ecosystem was observed in the latter site. The indigenous knowledge system and farming practices in both sites were similar though they just differed in the terminologies or local terms used. The introduction of new farming technologies, formal education and Christian religion affected the beliefs and practices done on the traditional farming practices in the study area. Apparently, these may be seen as threats that might further impinge on the already fragile traditional ecosystems.

KEYWORDS: Agri-ecology, ecosystem, indigenous practice, rice

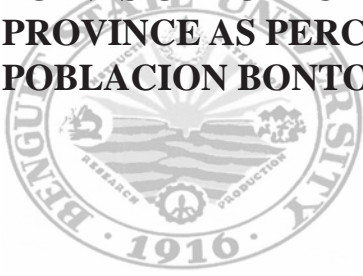
¹Part of an undergraduate thesis titled "Characterization of the Traditional Rice-Based Ecosystem in Kapangan, Benguet"

*²Bachelor of Science in Environmental Science Students,
major in Resource Management*

*³Adviser, College of Arts and Sciences and Associate Dean, Graduate School,
Benguet State University, La Trinidad, Benguet*



POINTS OF POLLUTION OF THE CHICO RIVER IN BONTOC, MOUNTAIN PROVINCE AS PERCEIVED BY THE RESIDENTS OF BARANGAYS BONTOC ILI, POBLACION BONTOC, CALUTTIT, AND SAMOKI



Aloha Freia F. Diaz¹ and Vicente T. Wacangan²

ABSTRACT

Many of the respondents are aware of the water pollution issues concerning the Chico River. The pollutants come from the households, businesses/industries, agricultural enterprises, and some naturally occur.

There are various effects of pollution to the residents of the different barangays, to the community, and also to the Chico River. Environmental degradation is the most common effect. It also caused health problems among the residents. Fishes are also killed so fishermen lose their source of income.

According to the residents, there are many possible solutions to the pollution of the river. A great majority of the respondents recommended recycling of wastes, responsible disposal of wastes and strict implementation of barangay or municipal ordinances regarding garbage disposal. It is suggested that the government should prioritize the selection of a suitable dumping site since the current dumping site is situated near the river and adds to the water pollution. It should also build a municipal sewage treatment plant and conduct Information Education Campaigns (IEC's) regarding water pollution.

KEYWORDS: Bontoc, Mt. Province, Chico River, River pollution

¹Student of Bachelor of Science in Forestry, Major in Agroforestry

²Adviser, College of Forestry, Benguet State University, La Trinidad, Benguet



FERN DIVERSITY OF THE MOSSY FOREST REMNANTS OF THE BSU-AGROFORESTRY PROJECT, BEKTEY, WANGAL, LA TRINIDAD, BENGUET



Roxanne A. Mulang¹ and John G. Tacloy²

ABSTRACT

The study identified the fern species existing in the mossy forest remnants of BSU Agroforestry Project, Bektey, Wangal, La Trinidad, Benguet and determined their abundance (density), dominance rank and economic importance. A total of 18 species of ferns were recorded in the study site.

In terms of number, *Pneumatopteris nitidula* is the most abundant, followed in descending order by *Pteridium aquilinum*, *Dicranopteris* spp., *Davallia solida*, *Dicranopteris linearis*, *Pneumatopteris glabra*, *Amphineuron terminans*, *Dipteris cojugata*, *Christella parasitica*, *Cyathea contaminans*, *Angiopteris palmiformis*, *Pteris glaucoverins*, *Araiostegia davalloides*, X_1 (unidentified), *Blechnum* spp., and *Angiopteris evecta*. *Dryopteris costalisora* and X_2 (unidentified) have the least density. In terms of the overall sum dominance ratio (SDR) *Cyathea contaminans* is the most dominant, followed in descending order by *Pteridium aquilinum*, *Pneumatopteris nitidula*, *Dicranopteris* spp., *Christella parasitica*, *Davallia solida*, *Angiopteris evecta*, *Dicranopteris linearis*, *Blechnum* spp., *Amphineuron terminans*, *Araiostegia davalloides*, *Angiopteris palmiformis*, *Pneumatopteris glabra* and *Dipteris cojugata*. The non-dominant species are X_2 (unidentified), X_1 (unidentified), *Pteris glaucoverins*, and *Dryopteris costalisora*.

The identified economic importance of ferns includes the following: used as food, medicine, ornamental plants, materials for stage decorations, raw materials in posts, and poles. Weaving and novelty industries.

Follow up study to validate the identity of the encountered species, identify the two unidentified species, and further determine the economic importance of the species is recommended.

KEYWORDS: Ferns, Mossy Forest Remnants

¹*Student, Bachelor of Science in Forestry*

²*Adviser, College of Forestry, Benguet State University, La Trinidad, Benguet*



THE ISRAELI DAIRY FARMING: A DOCUMENTATION



Bart A. Wallang¹ and Myrna B. Walsiyen²

ABSTRACT

This study was conducted to document the Israeli dairy farming which includes dairy farmers, their operations and management practices, milk production performance, and milking procedures at Kefar Vitkin, Kibbutz Hama'apil, Kibbutz Ma'abarot, Kibutz Eyal dairy farms and some Kibbutz farm in the northern part of Israel.

The data gathered were based on the researcher's observations, personal interview with the dairy farm owners and workers including Mr. Adin from the Ministry of Agriculture, Israel.

Dairy farming in Israel is operated by two large sectors, the Moshav (private owned) and the Kibbutz (communal). Each dairy farm, may it be controlled by a Moshav or a Kibbutz, is given a quota by the government as to the volume of milk that it should produce. All the milk produced by the different dairy farms are monitored by the government. Any excess milk produce over the farm quota is bought at 75% lower than the regular price.

There is only one dairy breed maintained by the farmers. The Israeli Holstein breed was developed by the Israeli Breeders Association from a cross between the German Holstein bull and the Israeli Damascus cow.

Dairy farmers breed their heifers at 15 months old for these heifers to have their first calving at 24 to 25 months old. Cows are bred 70 days after calving, however, for second timers, breeding is done 80 days after calving. This is to have a continuous milk supply. Cows are milked for a period of seven months from calving, after which, they are allowed to dry off for a period of 80 days for the second timers and 70 days for older cows.

Calves are separated from the cows immediately after birth and are subjected to dehorning at two months old.

Milking of cows is done twice a day but some milk their cow three times a day. Cows are milked using milking machines particularly the claw type milking machine. The volume of milk produced by the Israeli Holstein cow per day can be as high as 46 liters particularly during the winter season. During summer, milk production is reduced by 15%. On the average, the Israeli Holstein cow produces 36 liters of milk per day or 11,118 kg of milk per year containing 3.14% protein and 3.58% fats. The peak of milk production is reached on the third week of second month

of lactation and start to decline on the third month.

The different dairy farms have to maintain good milk quality to get a good price. To do this, each farm has its own nutritionist who are responsible in formulating the ration of the dairy farm animals.

Each farm has also its own veterinarian who visits the farm twice a week to look into the health of the animals and to perform insemination. Furthermore, the dairy farmers keep abreast with the Dairy Industry for new information or disease warning on dairy farming through the internet.

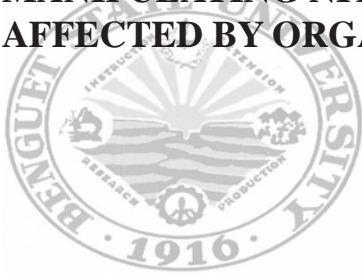
KEYWORDS: Dairy Farming, Israel

¹Student, Bachelor of Science in Agriculture major in Animal Science

²Adviser, College of Agriculture, Benguet State University, La Trinidad, Benguet



MANIPULATING NITROGEN RELEASE FROM ORGANIC FERTILIZERS AS AFFECTED BY ORGANIC BIOLOGICAL WASTE IN SOIL



May Ann C. Tuba-ang¹ and Carlito P. Laurean²

ABSTRACT

The experiment was conducted at the Department of Soil Science Laboratory Room, College of Agriculture, Benguet State University, La Trinidad, Benguet from November 2006 to May 2007 to determine the effect of organic fertilizers as affected by organic biological waste in the release of nitrogen and some chemical properties of the soil.

The pH of the soil, organic matter content, available nitrogen content and nitrogen mineralized were all significantly affected by the different kinds and combinations of organic fertilizers and organic biological waste. The application of chicken manure with cabbage refuse or wild sunflower significantly resulted to the highest pH value, organic matter content, amount of available nitrogen and nitrogen mineralized during the six different incubation periods.

The pH, organic matter content and amount of available nitrogen in the soil was observed to exhibit an increase and then a decrease of values. The pH and organic matter content values continuously increase until the 5th, 7th, or 10th week and would then gradually decrease up to the end of the incubation period. Release of available nitrogen in the soil was significantly increasing until the end of the incubation period. The continuous increase suggests that applying different kinds of organic fertilizers supplemented with fresh organic biological wastes (OBW) is enough to satisfy the nitrogen requirement of crops for their growth and development. This is in particular with those that require large amount of nitrogen. Among those applied, chicken manure combined with cabbage refuse or wild sunflower are the best materials.

KEYWORDS: Nutrient release, organic fertilizer, organic biological waste

¹Student, Bachelor of Science in Agriculture major in Soil Science

²Adviser, College of Agriculture and Director, Office of Research Services,
Benguet State University, La Trinidad, Benguet



DOCUMENTATION OF THE INDIGENOUS EDIBLE MUSHROOM VARIETIES IN SABANGAN, MOUNTAIN PROVINCE



Emely W. Tingcawa¹ and Cunegunda D. Abellera²

ABSTRACT

This study was conducted in four barangays of Sabangan, Mt. Province to identify edible and non-edible mushrooms which are familiar to the respondents; determine the indicators in identifying edible and non-edible mushroom; to find out what months and areas are these available; and, to know the common uses of the mushrooms.

The data was gathered through personal interviews from forty (40) respondents. Majority of the respondents are married and had formal education.

All the respondents identified various indigenous mushrooms in the study area. These are: *damilohan, kentegan, hedlan, kodi, o-ong, lamlam-ing, ul-ulling, tagtaga, and binunbungian* which usually grow under pinestand, grassy field, laws, dead logs, and animal manure.

The only considered indicators used by the respondents to identify edible and non-edible mushrooms is that non-edible ones grow on animal manure while edible ones are those that have been tried and tested by some to not have adverse effect on the stomach.

The respondents claimed that the mushrooms were used for decoration, thermos stopper, ash tray, souvenir items and as fly killer.

KEYWORDS: indigenous mushroom, edible mushroom

*¹Student, Bachelor of Science in Agriculture major
in Extension Education*

*²Adviser, College of Agriculture, Benguet State University,
La Trinidad, Benguet*

