BIBLIOGRAPHY

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ABSTRACT

The study was conducted to identify the crops cultivated by the home gardeners in their backyards; determine its benefits, so with the produced crops, the cultural management practices and the problems encountered by the respondents in home gardening.A survey questionnaire was used to gather the data and there were thirty (30) respondents of the study.

Majority of the respondents fell from the age bracket of 56-65 years old, married, females and all had gone to formal education. Most of them were involved in home gardening for at least 31-40 years and had 50-150 square meter land area for home gardening.With regard to the crops planted, all the respondents planted various kinds of crops such as leafy vegetables, fruit bearing vegetables, legumes, root crops, fruit trees, ornamentals, medicinal plants and other crops.

Moreover, all the respondents were benefited through home gardening in different areas: for family consumption, recreational activity, protection against natural calamities, shades against extreme heat, for medicinal purposes, prevention from soil erosion, aesthetic for backyard, additional income and preserving watershed.

Further, all of the respondents claimed that the crops produced from home gardening were used for food while majority were for medicine and the remaining were used as give-away for their neighbors, for business, animal feeds and as school projects.

When it comes to cultural practices, all the respondents practiced multiple cropping systems. Majority practiced multi-storey cropping while the rest practiced crop rotation, intercropping and relay cropping. As to the soil management, majority practiced minimum tillage while the rest applied organic and inorganic fertilizer, cover crop and fallowing. In terms of source of irrigation, the sources were rain, faucet, creeks or springs and deep well. Regarding pests and diseases management, majority practiced cultural control while the rest practiced chemical and biological control.

Most problems encountered by the respondents were natural calamities, occurrences of pests and diseases, lack of water, neighbors that steals crops, animals that destroys garden and low yield.

The study recommends that there must be a continuing guidance and support from the Local Government Units (LGUs) to the promotion of home gardening, thus enhancing the awareness of the people on the importance of home gardening in relation to problems of increasing food prices, decreasing landholdings, environmental degradation, poverty and malnutrition; continuous education through seminars on Food Always In The Home (FAITH) may considered. FAITH focuses on home food security making food always available, accessible and affordable for the family. Thus, decreasing problems on food shortage and encourages dietary diversity; home gardeners may encourage their neighbors to do home gardening to yield more crops for marketing purposes.

RESULTS AND DISCUSSION

General Information of the Respondents

Table 1 shows the general information about the respondents as to age, civil status, sex, educational attainment and number of family members. It includes also the information on the area of land that the respondents cultivated and the number of years of the respondents in home gardening.

Age. Result shows that 23% of the respondents belong to age bracket of 56 to 65; 20% belong to 46 to 55 and 15 to 25; 34% belong to 26 to 45 and the remaining 3% belong to 66 to 75 years old. The age distribution shows that most of the respondents were at their old age.

Civil Status. Majority of the respondents (60%) were married and the rest 40% were single. It implies that married couples were of great concerned in garden activities than singles.

Sex. With regard to sex, 67% were females while the remaining 33% were males. This finding shows that females were more involved in home gardening activities since majority of them were housewives who took good care of their homes.

Educational Attainment. All of the respondents had gone formal schooling. Out of 30 respondents, 13 reached high school; 12 reached college level and the remaining five finished elementary level. Result shows that all of the respondents were able to read and write.

Number of Family Members. Result shows that 50% of the respondents had 4 to 6 number of family members; 30% was at the bracket number of 7 to 9; 13% was at the bracket

number of 1 to 3 and the remaining 7% was at the bracket number of 10 to 12 family members.

Number of Years in Home Gardening. Majority of the respondents (47%) belong to the year bracket of 31 to 40; 23% belong to 21 to 30: 20% belong to 11 to 20 and the remaining 10% belong to 1 to 10 years in home gardening. This implies that most of the respondents devoted themselves to home gardening for how many years since most of them were at their old age.

Area of Land Cultivated. In terms of land cultivated, majority of the respondents (50%) cultivated 50 to 150 square meters; 17% cultivated 151 to 250 square meters; 13% cultivated 251 to 350 square meters; 7% cultivated 351 to 450 square meters and 451 to square meters; and the remaining 6% cultivated 551 to 750 square meters. This result shows that most of the respondents did not own a wide area of land for home gardening since the place was located in an urban area where there were no enough space to put up farms. This corroborates what Ebenezer (1993) stated, wherein urban landscapes are often viewed as barren and cold scenes of concrete, asphalt and glass. They are portrayed as the opposite of the rural pastoral setting, rich in vegetation and greenery.

Table 1. General Information of the Respondents

CHARACTERISTICS	FREQUENCY (n=30)	PERCENTAGE (%)	RANK
Age			
15-25	6	20	2
26-35	5	17	3
36-45	5	17	3
46-55	6	20	2
56-65	7	23	1
66-75	1	3	4
TOTAL	30	100	

Civil Status			
Married	18	60	1
Single	12	40	2
TOTAL	30	100	
Sex			
Female	10	33	2
Male	20	67	1
TOTAL	30	100	
Educational Attainment			
Elementary	5	17	3
High school	13	43	2
College	12	40	1
TOTAL	30	100	
Area of Land Cultivated (sq.m)			
50-150	15	50	1
151-250	5	17	2
251-350	4	13	3
351-450	2	7	4
451-550	2	7	4
551-650	1	3	5
651-750	1	3	5
TOTAL	30	100	
Number of Family Members			
1-3	4	13	3
4-6	15	50	1
7-9	9	30	2
10-12	30	7	4
TOTAL	30	100	
Number of years in Home Gardening			
1-10	3	10	4
11-20	6	20	3
21-30	7	23	2
31-40	14	47	1
TOTAL	30	100	

Crops Grown by the Respondents

Table 2 shows the different crops grown by the respondents in barangay Loakan, Proper, Baguio City.

Leafy Vegetables. Majority of the respondents (40%) planted *pechay* followed by *alugbati*, *malunggay* together with celery and water crest.

Vegetable Fruits. All of the respondents (100%) planted chayote followed by *sili*, tomato, squash, eggplant together with *ampalaya*, pepper, *sukini*, and cucumber.

Legumes. Majority of the respondents (37%) planted *patani* followed by beans, pigeon pea and garden pea.

Root Crops. Majority of the respondents (80%) planted sweet potato followed by taro; cassava together with *yacoon*; potato and turnip.

Spice Crops. Majority of the respondents (47%) planted ginger followed by onions and garlic.

Fruit Trees. Majority of the respondents (77%) planted guava followed by avocado together with papaya; *Kalamansi* together with coffee and banana; jack fruit; lemon together with mango; mulberry; pomelo; *santol* together with star apple and *cheeza*; orange and Spanish guava together with *guyavano*, persimmon and *lukwat*.

Ornamentals. Majority of the respondents (67%) planted gummamela followed by anthurium; fortune plant together with orchids; golden bush; money tree; rose together with cactus; poinsettia; bromeliad together with bamboo; bougainvillea, marigold together with mop head and curtain plant together with *dama de notche.*

Medicinal Plants. Majority of the respondents (33%) planted oregano followed by *kutsay*; lemon grass; mint; mountain tea together with *gawed* and alovera.

Other crops that the respondents planted were pineapple followed by passion fruit; sugarcane together with corn; *pandan* and tiger grass. The result implies that all of the respondents planted various crops.

This corroborates what Pinton (1985) stated that the high diversity of plant cultivars in home garden is a rich genetic resource.

Table 2. Crops grown by the respondents

CROPS GROWN	FREQUENCY (n=30)	PERCENTAGE (%)	RANK
Leafy Vegetables			
Pechay	12	40	1
Alugbati	6	20	2
Malungay	2	7	3
Celery	2	7	3
Water Crest	1	3	4
Fruit Bearing Vagetable			
Chayote	30	100	1
Sili	18	60	2
Tomato	15	50	3
Squash	12	40	4
Ampalaya	6	20	5
Eggplant	6	20	5
Pepper	4	13	6
Sukini	3	10	7
Cucumber	1	3	8
Legumes			
Patani	11	37	1
Beans	7	23	2
Pigeon pea	2	7	3
Garden pea	1	3	4
Spice crops			
Ginger	14	47	1
Onions	13	43	2
Garlic	1	3	3

Table 2 continued…

CROPS GROWN	FREQUENCY (n=30)	PERCENTAGE (%)	RANK
Root crops			
Sweet potato	24	80	1
Gabi	22	73	2
Yacoon	11	37	3
Cassava	11	37	3
Potato	5	17	4
Turnip	1	3	5

Fruit trees			
Guava	23	77	1
Papaya	17	57	2
Avocado	17	57	2
Kalamansi	16	53	3
Coffee	16	53	3
Banana	16	53	3
Jack fruit	15	50	4
Lemon	12	40	5
Mango	12	40	5
Mulberry	10	33	6
Pomelo	8	27	7
Cheeza	5	17	8
Santol	5	17	8
Star apple	5	17	8
Orange	4	13	9
Spanish guava	2	7	10
Guyavano	2	7	10
Persimmon	2	7	10
Lukwat	2	7	10
Medicinal Plant			
Oregano	10	33	1
Kutsay	7	23	2
Lemon grass	6	20	3
Mint	3	10	4
Mountaint tea	2	7	5
Gawed	2	7	5
Alovera	1	3	6

Table 2 continued…

CROPS GROWN	FREQUENCY (N=30)	PERCENTAGE (%)	RANK
Ornamentals			
Gummamela	20	67	1
Anthorium	19	63	2
Fortune plant	18	60	3
Orchids	18	60	3
Golden bush	13	43	4
Money tree	11	37	5
Cactus	10	33	6
Rose	10	33	6
Cymbidium	9	30	7
Poinsettia	7	23	8
Bromeliad	6	20	9
Bamboo	6	20	9
Bougainvillea	5	17	10
Marigold	4	13	11
Chrysanthemum	4	23	11
Mop head plant	4 2	13 7	11 Curtain 12
Dama de noche	2	7	12
Other crops			
Pineapple	8	27	1
Passion fruit	6	20	2
Sugarcane	3	10	3
Corn	3	10	3
Pandan	4	13	4
Tiger grass	2	7	5

*Multiple Responses

Benefits Derived from Home Gardening

Table 3 shows the benefits derived by the respondents from home gardening. All respondents (100%) claimed that the benefits from home gardening were for family consumption; recreational activity (93%); protection against natural calamities such as typhoons (73%); shade against extreme heat (70%); Medicinal purposes (63%); soil erosion prevention (57%); aesthetic benefit (53%); additional income (40%) and watershed preservation (7%). The result shows that all respondents gained benefits through home gardening in many different areas as to household and environment necessities.

This corroborates what Ninez (1985) stated, just like other small scale activities, home gardening may have been restored to not only because of poverty but also for health, recreation, aesthetic and therapeutic reasons.

Christanty (1980) supports this by saying that the satified canopy structure shelters the house against intense heat, strong winds and other natural calamities.

Table 3. Benefits derived from home gardening

BENEFITS	FREQUENCY (n=30)	PERCENTAGE (%)	RANK
Family consumption	30	100	1
Recreational activity	28	93	2
Protection	22	73	3
Provides shading	21	70	4
Medicinal purposes	19	63	5
Soil erosion prevention	17	57	6
Aesthetic benefits	16	53	7
Additional income	12	49	8
Water shed	2	7	9

*Multiple Responses

Uses of the Crops Produced

Table 4 shows the uses of the crops produced from home gardening where all of the respondents (100%) claimed that the crops produced from home gardening were being used for consumption; medicine (67%); give-away for neighbors (63%); business (37%); animal feed (33%) and school project (10%).

The result implies that one of the sources of household necessities was derived from home garden. Home gardening production constitutes what Briomes (1989) termed as 'live savings' for household necessities. The income derived from home garden was high during shortage of food, when people need additional food particularly money. Every species in home garden is in some way useful, says Abdoellah (1982).

Table 4. Uses of the crops produced

USES	FREQUENCY (n=30)	PERCENTAGE (%)	RANK
Consumption	30	100	1
Medicine	20	67	2
Give-away	19	63	3
Business	11	37	4
Feeds	10	33	5
School project	3	10	6

*Multiple Responses

Cultural Management Practices

Table 5 shows the cultural management practices of the respondents in home gardening as to cropping system, soil management source of irrigation and pests and diseases management.

Cropping System. All of the respondents (100%) practiced multiple cropping while Majority (27%) practiced multi-storey cropping (27%); crop rotation (17%) intercropping (10%) and relay cropping (3%) as cropping system.

This implies that there was a high diversity of crops being managed by the respondents in their home garden since all of them applied a cropping system where there was a diversity of crops. Contrary to the monocropping, genetic uniformity of crops was being promoted.

As to the multi-storey cropping, Christanty (1980) added that the higher tress usually had larger cover. Consequently, the lower plants were grown mostly in half or full shade. The stratification of plant canopies proves to be beneficial in the utilization of sunlight.

Regarding crop rotation, some respondents practiced the cycling of different crops on the same land. This corroborates what Bailey (1911) stated that a normal way to do crop rotation is to mix green manure and other organic matter in with the soil. This adds nitrogen and other nutrients that plants need to grow. When this is added, it can help different crops be able to grow at the same time in the same space.

Some respondents also practiced intercropping where they grow two or more crops in proximity and relay cropping which consisted of inter-seeding second crop into the first crop well before it is harvested.

Soil Management. Majority of the respondents (87%) practiced minimum tillage; 57% applied cover crops; 40% applied organic fertilizer; 25% applied inorganic fertilizer and practiced fallowing. Soil management practices were not limited to backyard lots but also include pots, way side canals, roadsides, stone walls and even in portion of commercial gardens and rice fields (Ninez, 1985).

As to cover crops, respondents planted sweet potato and chayote to cover the soil, thus shielding the soil surface from the impact of falling raindrops; holding soil particles in place; preventing crust formation; improving the soil's capacity to absorb water; slowing the velocity of runoff and removing subsurface water between storms through transpiration.

Source of Irrigation. All of the respondents claimed that the source irrigation were from rain, faucet and creeks or springs (40%) and deep well (10%). This Implies that the respondents were used to available irrigation resource in their vicinity.

Pests and Diseases Management. Majority of the respondents (77%) were practicing cultural control in managing pests and diseases while 20% were practicing chemical method and the rest 3% were practicing biological mean of controlling.

As to cultural control, Hill (1979) stated that cultural controls employ practices that make the environment less attractive to pests and less favorable for their survival, dispersal, growth and reproduction, and that promote the pest's natural controls. The objective is to achieve reduction in pest numbers, either below economic injury levels, or sufficiently to allow natural or biological controls to take effect.

Table 5. Cultural management practices

CULTURAL MANAGEMENT PRATICES	FREQUENCY (n=30)	PERCENTAGE (%)	RANK
Cropping system			
Multiple cropping	30	100	1
Multi-storey cropping	8	27	2
Crop rotation	5	17	3
Intercropping	3	10	4
Relay cropping	1	3	5
Soil management			
Minimum tillage	26	87	1
Cover crop	17	57	2
Application of O.F.	12	40	3
Application of I.F	4	23	4
Fallowing	4	23	4
Source of Irrigation			
Rain	30	100	1
Water from the faucet	12	40	2
Creeks/springs	12	40	2
Deep well	3	10	3
Pests and diseases management			
Cultural control	23	27	1
Chemical control	4	20	2
Biological control	1	3	3

*Multiple Responses

Problems Encountered

Table 6 shows the problems encountered by the respondents in home gardening. All of the respondents encountered natural calamities such as typhoons, strong wind and extreme heat in home gardening. As to the Pests and Diseases, 83% of the respondents encountered pests such as insect pests, rodents, mites and slugs while 30% encountered plant diseases such as mosaic virus, coffee rust and molds. Other problems encountered by the respondents in home gardening were lack of water (37%); neighbors that steals crops and animals that destroys the garden (17%) and low yield (13%).

Table 6. Problems encountered

PROBLEMS ENCOUNTERED	FREQUENCY (n=30)	PERCENTAGE (%)	RANK
Natural calamities	30	100	1
Occurrence of pests	25	83	2
Occurrence of diseases	15	30	3
Neighbors that steals	5	17	5
Lack of water	11	37	4
Animals that destroys	5	17	5
Low yield	4	13	6

*Multiple Responses

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The study on the assessment of home gardening in Loakan Proper, Baguio City identified the crops cultivated by the home gardeners in their backyards; determine its benefits, so with the produced crops, the cultural management practices and the problems encountered by the respondents in home gardening.

Results show that majority of the respondents were from the age bracket of 56-65 years old, married, females and all had gone to formal education. As to the involvement of home gardening, most of them were at least 31-40 years and had 50-150 square meter land area for home gardening.

With regard to the crops planted by the respondents, all of them planted various kinds of crops such as leafy vegetables, fruit bearing vegetables, legumes, root crops, fruit trees, ornamentals, medicinal plants and other crops.

Also, all of the respondents were benefited through home gardening in different areas: for family consumption, recreational activity, protection against natural calamities, shades against extreme heat, for medicinal purposes, prevention from soil erosion, aesthetic for backyard, additional income and preserving watershed.

Further, all of the respondents claimed that the crops produced from home gardening were used for food while majority were for medicine and the remaining were used as give-away for their neighbors, for business, animal feeds and as school projects.

When it comes to cultural practices, all the respondents practiced multiple cropping systems. Majority practiced multi-storey cropping while the rest practiced crop rotation, intercropping and relay cropping. As to the soil management, majority practiced minimum

tillage while the rest applied organic and inorganic fertilizer, cover crop and fallowing. In terms of source of irrigation, the sources were rain, faucet, creeks or springs and deep well. Regarding pests and diseases management, majority practiced cultural control while the rest practiced chemical and biological control.

Most problems encountered by the respondents were natural calamities, occurrence of pests and diseases, lack of water, neighbors that steals crops, animals that destroys the garden and low yield.

Conclusions

Based on the findings, the following conclusions were made:

1. The crops cultivated by the home gardeners in their backyards were mostly leafy vegetables, fruit bearing vegetables, legumes, root crops, fruit trees, ornamentals and medicinal plants.

2. The benefits derived from home gardening was for family consumption, recreational activity, protection against natural calamities, shade, medicinal purposes, prevention from soil erosion, aesthetic, additional income and water shed preservation.

3. The crops produced from home gardening were for kitchen, medicine, giveaways, for market, feeds and school projects.

4. The cultural management practices applied was cropping systems, soil management, irrigation, pests and diseases management.

5. Problems encountered in home gardening were natural calamities, occurrence of pests and diseases, neighbors that steals crops, animals that destroys garden, lack of water and low yield.

Recommendations

Based on the findings and conclusions, the following were recommended:

1. There must be a continuing guidance and support from the Local Government Units (LGUs) to the promotion of home gardening, thus enhancing the awareness of the people on the importance of home gardening in relation to problems of increasing food prices, decreasing landholdings, environmental degradation, poverty and malnutrition.

2. Continuous education through seminars on Food Always In The Home (FAITH) may be considered. FAITH focuses on home food security making food always available, accessible and affordable for the family. Thus, decreasing problems on food shortage and encourages dietary diversity.

3. Home gardeners may encourage their neighbors to do home gardening to yield more crops for marketing purposes.

LITERATURE CITED

ABDOELLAH, O.S 1991. Future development of home gardens. Paper presented during the international workshop on household gardens. Bangkok, Thailand.

ABDOELLAH, O.S 1982. Home garden plant structure of the Bantarkalong Javanese Village, Pangadaran, West Java. Unpublished thesis. Padjadjaran University. P.7.

ABDOELLAH, O.S 1978. Structure of home garden in Selajambe and Pananjung. Paper presented at the seminar on ecology of home garden II, Institute of Ecology.

ANONYMOUS. Urban gardening help. Retrieved December 15, 2011 from http://www.urbangardeninghelp.com

BAILEY, L. 1911. Cyclopedia of American Agriculture. Retrieved March 20, 2012 from http://www.knowledgebank.irri.org

BRIOMES. 1989. As cited by NINEZ, V. 1985. Introduction: Household gardens and small–scale food production. Food and Nutrition Bulletin (UNU). 7(3). Pp. 1-5.

CHRISTANTY, L. 1980. Light distribution in sundanse home garden. Unpublished thesis. Padjadjaran University. Bandung. P. 8.

EBENEZER, J. 1993. Urban agriculture: a guide to a container gardens. Pelham Court, Westerville, Ohio. Retrieved December 15, 2011 from http://www.technologyforthepoor.com/UrbanAgriculture/Garden.htm

HILL, S. 1979. Macdonald College of McGill University Ste-Anne de Bellevue. Retrieved March 20, 2012 from http://eap.mcgill.ca

HISYAM, A. 1980. Social-economic aspects of the home garden in Kampung Babakan, Cianjur. Intern report. Padjadjaran University.

HISYAM, A. AND A. MARTADIHARDJA. 1978. Social- cultural and social economic aspects of the home garden. Seminar presented at Padjadjaran University, Institute of Ecology.

ISKANDAR, J. 1977. Research on Bird Ecology: Population inventory by using IPA Method. Institute of Ecology. UNPAN. Bandung. Pp. 5-6.

MULA, R. AND B. GAYAO. 1991. Urban and rural home gardens in the gardens in the highlands of Northern Philippines: The case of sweet potato. Benguet State Agricultural College, La Trinidad, Benguet. Pp. 4-8

NINEZ, V. 1985. Introduction: Household gardens and small–scale food production. Food and Nutrition Bulletin (UNU). 7(3). Pp. 1-5.

NUTRITION CENTER OF THE PHILIPPINES. 1974. Food always in the home. Retrieved December 15, 2011 from http://www.ncp.org.ph/index.php/Food- Always-in-the-Home-FAITH.html

OCHSE, J. AND G. TERRA. 1937. The economic aspects of the Koetawinangun report.

PINTON, F. 1985. The Tropical Gardens a Sustainable Food System: A comparison of Indians and settlers in Northern Colombia. Research in Food Bulletin.

SOEMARWOTO, O. AND I.SOEMARWOTO. 1985. The Javanese rural ecosystem: An introduction to human ecology research on agricultural system in Southeast Asia. University of the Philippines, Los Baños.