doi: 10.11594/jtls.07.02.02
THE JOURNAL OF TROPICAL LIFE SCIENCE
OPEN ACCESS Freely available online
VOL. 7, NO. 2, pp. 95 – 101, April 2017
Submitted March 2016; Revised May 2016; Accepted February 2017

Ethnobotanical study of plants used by people in Hiang Indigenous Forest Kerinci, Jambi

Evan Vria Andesmora [1*], Muhadiono [1, 2], Iwan Hilwan [3]

[1] Department of Biology, Faculty of Mathematics and Natural Sciences, Bogor Agricultural University, Bogor, Indonesia
[2] Department of Silviculture, Faculty of Forestry, Bogor Agricultural University, Bogor, Indonesia

ABSTRACT

Indonesia is a high-abundance tropical forests country. It plays a critical role in world life because of its species richness than others. One of the forest resources in Indonesia is indigenous forests. Indonesia is rich in local wisdom such as that possessed by indigenous peoples. Indigenous peoples have a potential of the biological resources conservation. As a sustainable management tradition, communities around indigenous forest also have the efforts to preserve the forest. The data collection of community knowledge about plants was conducted by interviews and direct-field observation. Data were analyzed using the index of cultural significance. The results showed that there are 48 species of plants utilized by communities in Hiang Indigenous Forest, 27 species are used as firewoods, 15 species as building materials, seven species of medicinal plants, six species as traditional handicraft ingredients and four species as secondary foods and traditional ritual materials. Most of the widely-used plants by the community are *Altingia excels*, and *Styrax benzoin* is used as incense in a traditional ritual.

Keywords: *Ethnobotany, Hiang indigenous forest, Kerinci - Jambi*

INTRODUCTION

Indonesia is a high-biodiversity country with extensive tropical forests. Tropical rain forest is the climax ecosystem with very diverse conditions–flowering and fruiting. It has typical vegetation covering all land surfaces with a hot climate, high rainfall and evenly distributed [8]. Tropical forests play a crucial role for living beings in the world because of its abundant species than other kinds of forest.

Indonesia has one of the largest forest resources in the world. Most of them located in Kalimantan, Sumatra, and Papua. It describes the important role of these islands for the economic development of Indonesia [1]. Vast tropical rain forests have the wealth and potential, but often get interference–activities from the outside affecting the ecosystem, community, population, soil, and biodiversity [24].

Indigenous Forest, one forest resources in Indonesia, includes Indigenous Forest of Nenek Limo Hiang Tinggi Nenek Empat Betung Kuning Muaro Air Dua – known as Hiang indigenous forest– as one of located in Kerinci regency. It is a buffer area of Kerinci Seblat National Park (KSNP). This indigenous forest aims for long-term assurance provider of water availability and soil fertility protector of the countryside, biodiversity protection and helping the national park management in securing the KSNP core zone [26].

Biodiversity in Indonesia is a potential competitive benefit, such as superior agricultural products, biomedicines, cosmetics, dyes, and preservatives. This is supported by the community knowledge about the efficacy and usability. People in Rejang Lebong, Bengkulu has utilized 25 species of plants that are used to repel pests of crops [28]. People in Cibunar village, Sumedang has utilized 160 medicinal plant species [9]. Utilization of bamboo by Dayak Kanayatn [16] and 65 species of medicinal plants by Dayak Iban [14] are the other well-developed community knowledge.

Other countries have been already developing forest resources by utilizing local knowledge as that of India. Manipuri community of India has been employing 26 species of plants as antipyretic [13]. Irulas tribe of India

*Corresponding author:
Evan Vria Andesmora
Department of Biology, Faculty of Mathematics and Natural Sciences, Bogor Agricultural University
Jalan Raya Dramaga, Bogor, Indonesia 16680
E-mail: andesmora23@gmail.com

How to cite:
Andesmora EV, Muhadiono, Hilwan I (2017) Ethnobotany Hiang Indigenous Forest, Kerinci. J. Trop. Life. Science 7 (2): 95 – 101.

have been using 70 species of wild plants as medicines [19]. Tibetan has been utilizing 75 species of plants and fungi for their daily needs [2]. The community is living in Gayasan National Park; South Korea has been utilizing 200 species of plants for medical practices [25]. People in Bologna, Italy use *Taraxacum officinale* Weber, *Crepis vesicaria* subsp. Taraxacifolia (Thuill) Thell and *Sonchus* spp. as foods and medicines [20].

The local wisdom of communities has the potential of biological resources conservation. As a sustainable management tradition, indigenous forest communities also have the efforts to preserve the forest. The local wisdom of Hiang community in utilizing plants has not been published, whereas it can improve their welfare. Furthermore, the availability of data and information about plant species in Hiang indigenous forest is very important, especially to improve the sustainable management and utilization of natural resources.

MATERIALS AND METHODS

Location and time

This research was conducted in February to April 2015 at Hiang indigenous forest, Sitinjau Laut district, Kerinci regency, Jambi.

Ethnobotany data collection

Ethnobotany data were collected through emic and ethical (science) approach. The emic approach was employed to obtain data about community knowledge about plants. Data collection of community knowledge was performed through interview and observation. The ethical approach was used by analysis using Index of Cultural Significance (ICS) [29].

Index of cultural significance analysis

Ethnobotany data for the plant's system diversity utilization could be calculated by Index of Cultural Significance (ICS). ICS is the result of quantitative ethnobotany analysis that shows the value of the interest of each plant species. The calculation used the following formula [29]:

$$ICS = \sum_{i=1}^{n} (q \times i \times e)_{i\,ni}$$

Note:
ICS = Index of Cultural Significance.
q = Quality Value
i = Intensity Value
e = Exclusivity Value

RESULTS AND DISCUSSION

Indonesian local wisdom in protecting the environment is crucial. The wise-and-proper forest utilization management will produce a natural balance that provides benefits and welfare for the life of the community [21]. Plant utilization in Hiang indigenous forest is divided into several categories such as medicinal plants, building materials, handicrafts, ornamental plants, secondary food, and traditional ritual materials. The community is very aware that the forest is crucial to keep the springs, seemed to that committed by the community of Purwogondo village, Kendal [23].

The vegetation in Hiang indigenous forest was dominated by large trees so that it is maximized in building materials. Most of the plants are used as firewoods, 27 species, then 15 types are used as firewood building materials, 7 species as medicines, 6 species as traditional handicraft materials and 4 species as secondary foods and traditional ritual ingredients.

Exploiting the natural resources is depend on the traditional knowledge of community about kinds of plants in the environment, for example, the use of edible fruits. Tembawang Forest community, Setia Jaya district, Bengkayang has been utilizing 25 species of edible fruits [12].

Indonesia has vast forest resources. Society has leveraged existing plants for the life necessities. Forest plants are very useful because of the available as food sources. The research found 33 food-ingredient plant species in Sebangun village, Sebawi district, Sambas [30]. Another research found 47 species of plants are potential as a food source that can be utilized by the community in Peramas Mount, Pangkalan village, Pangkalan Buton District, North Kayong [10]. Meanwhile, community around Tembawang forest, Nanga Kompi village, Nanga Sayan district, Malawi has been utilizing 92 species of plants for daily lives [5]. Seberuang Dayak tribe in the Forest of Ensabang village, Sepauk district, Sintang utilize 60 species of potential plants as medicinal plants [27]. Thus, the forest is a potential resource for the community to meet the daily life.

The dominant use plants are commonly used for common interests such as building the mosque, small mosque, custom house, customary ritual that requires ingredients from plants in Hiang indigenous forest. Such events are the community events for entry into the forests and use forest products inside. Before going into the forest, people usually ask for permission from the traditional leader who became responsible for maintaining indigenous forest.

Most of the commonly-used plant species are *Altingia excels* and *Styrax benzoin*. Both of them are an incense-producing tree that is often used in traditional activities. Incense of both species are usually taken by people who are entering the forest with a view of scare-side, either naturally or deliberately harmed in the trunk of the tree.

a. *Firewood/Charcoal*

Every day, the firewood is partly taken from the forest. The plant species in Hiang indigenous forest generally used as a fuel and charcoal is *Ficus* sp., *Santiria tomentosa*, *Styrax benzoin*, *Palaquium rostratum*, Glochidion obscurum, Lithocarpus elegans, *Alstonia scholaris*, *Hancea*, *Acer laurinum*, *Lasianthus* cf. Scabridus, *Elaeocarpus* sp. *Palaquium calophyllum*, *Alstonia spectabilis*, Mallotus sp., Castanopsis sp., Lithocarpus elegans, *Adinandra borneensis*, *Artocarpus* sp., *Archidendron clypearia.*, *Pittosporum ferrugineum*, *Quercus gemelliflora*, *Gironniera subaequalis*, *Adinandra acuminata*, and *Schima walichii*. People surrounding indigenous forest generally use any species that has been dried as firewood, but the most preferred is a saplings and poles due to easy-to-reach height and easy-to-take home.

Firewood-utilization of plants is common for most people in Indonesia inhabiting the around the forest. Dani tribe in Baliem valley of Papua, for example, utilizes 17 species as firewood [4]. Prior to the determination of Indigenous Forest, people still use the plants as charcoal for sale. It is also used as livelihood by some people. After the inaugural of Indigenous Forests and the tree-cut prohibiting by the government, people leave directly.

b. *Building Material*

Most of the trees in the Hiang indigenous forest utilized as building materials–pole/frame of houses– are *Ficus* sp., *Altingia excelsa*, *Santiria tomentosa*, *Styrax benzoin*, *Palaquium rostratum*, *Lithocarpus*, *Palaquium*, *Artocarpus* sp., *Ficus grossulariodes*, *Toona* sp., *Abroma augusta*, *Cinnamomum petrophilum*, *Quercus gemelliflora*, and *Liquala spinosa*. No cultivation has done by the people in the garden or around the settlement. Formerly, there were few timbers used for building materials since the population still live in the traditional house of "Rumah larik panjang" inhabited by several households. The cutting tools were still simple, such as axes, saws, and machetes. However, the timber harvesting in forests has increased by more modern instruments such as circular saws.

c. *Medicinal Plant*

Indonesian society still mostly use plants in nature as a traditional medicine. Indonesia, which has thousands of various tribes, have different wisdom and knowledge in the use of medicinal plants. The surrounding community of Hiang indigenous forest utilize several medicinal plants such as *Semantung* (*Ficus* sp.), *Telabuik* (*Ficus* sp), *Kayu Tula* (*Artocarpus* sp), *Kayu Anak* (*Mangifera griffithii*), *Pinang Imbo* (*Pinanga patula*), and *Keladi Imbo* (*Alocasia* sp) after a consultation to the traditional medicine expert. Most of these plants utilized as the crude extract. It is usual that people use medicinal plants around their settlements. The same thing was found in Wawonii island community of Southeast Sulawesi, recorded 73 medicinal plants species utilized [17]. Traditional medicines are usually made from the leaves, barks, and roots of plants. The results showed that people are generally utilized medicinal plants at the leaves [22].

d. *Handicraft*

Modern lifestyle does not make people forget about the traditional handicrafts in compliance with household appliances. Some people still use traditional tools to perform activities such as *Jangki* (conveyance traditional for women) that used to carry equipment and food to the paddy fields. Plants used as a handicraft are *Pulai* (*Alstonia scholaris*), *Kayu Trok* (*Artocarpus altilis*), *Rotan* (*Calamus marginatus*), and *Boa* (*Salacca zalacca*).

C. marginatus is commonly-used, nowday, which is the highest-utilized by almost tribes in Indonesia. Rattan is mostly-used by the communities, one of them by the people in Tapa river, Jambi who use it as handicraft ingredients [17]. Besides, harvesting rattan knows no season like that done by the people in Alu village, Polman except during high rainfall intensity [3].

e. *Ritual/Custom*

Custom activities in the community are still strong to do, such as *kenduri sko* (Thanksgiving of plentiful harvest), that people usually use some plants to complete the event. The plants include *Kayu Pandan* (*Altingia excelsa*), *Kijang* (*Styrax benzoin*), *Balang Tinggai* (*Palaquium obovatum*), and *Pinang Imbo* (*Pinanga patula*). One of producing the sap form of incense is *A. excelsa* and *S. benzoin* which is not been cultivated by the community.

The incense collection is usually done in two ways:

wounding on the trunk and natural wounding—two trees grow together and rub each other causes injuries of the trunk. Natural wounding usually produces more incense. The incense-producing trees in the Hiang indigenous forest are still existed because of this dominant-tree. The plant utilization as ritual ingredients has been widely documented in several tribes in Indonesia. Kaili Lauje tribe has been utilizing 14 species, while Buginese is utilizing 12 species [15]. Malays in Landak Regency has been utilizing 23 species [7].

The community rarely touches secondary forest vegetation. The establishment of Decree in 1994 by the government makes people afraid to enter unless having a mutual interest. The knowledge flow regarding the plant utilization in Hiang indigenous forest is critical because the people have that are getting elder. The science outages will happen if it does not exist. The previous results showed that most teens do not know the benefits of plants around them [18].

Forest resource management systems of each region and tribe have distinctive characteristics. This difference will ultimately affect all human activities in their life. Understanding of local knowledge about the spatial strategy aims to determine the level of society adaptation to the surrounding environment. Furthermore, community - based environment managements are often found work well and efficient in saving forests. For example, a custom community of Ammatoa realizes the importance of forest conservation as a regulator of the water system [6].

CONCLUSION

People in the Hiang Indigenous Forest has been utilizing 48 species of plants. Most of the plants, 27 species, are utilized as firewood, and the rest with various purposes, 15 species as building materials, seven species as medicinal plants, six species as a traditional handicrafts ingredient and four species as secondary food and traditional ritual materials. The most widely-used plants are *A. excelsa* and *S. benzoin* as incense in a traditional ritual.

ACKNOWLEDGMENT

The authors are thankful to the people for sharing their knowledge on plants and who gave the opportunity and facilities to study in Hiang indigenous forest Kerinci.

REFERENCES

1. Aryadi M (2012) Hutan Rakyat. Malang, UNM Press.
2. Alessandro B (2014) Traditional knowledge of wild food plants in a few Tibetan communities. Journal of Ethnobiology and Ethnomedicine 10: 75. doi:10.1186/1746-4269-10-75.
3. Asrianny, Muhammad D, Asrianty (2012) Pemanfaatan sumberdaya hutan di hutan lindung Kecamatan Alu Kabupaten Polman Propinsi Sulawesi Barat. Jurnal Perennial 8: 93-98.
4. Arobaya AYS, Freddy P (2007) Jenis tanaman berguna bagi Suku Dani di Lembah Baliem, Papua. Biota 12:192-195.
5. Dasman Y, Oramahi, Lolyta S (2015) Tumbuhan sumber pangan yang dimanfaatkan oleh masyarakat sekitar hutan Tembawang Desa Nanga Kompi Kecamatan Nanga Sayan Kabupaten Malawi. Jurnal Hasil Hutan 3:332-336.
6. Dassir M (2008) Pranata sosial sistem pengelolaan hutan masyarakat adat Kajang. Jurnal Hutan dan Masyarakat 3: 111-234.
7. Hasanah U, Linda R, Lovadi I (2014) Pemanfaatan tumbuhan pada upacara adat Tumpang Negeri Suku Melayu di Keraton Ismahayana Landak. Jurnal Protobiont 3: 17-24.
8. Irwan ZD (1996) Prinsip-prinsip ekologi. Jakarta, Bumi Aksara.
9. Iskandar J, Suryana Y, Ramlan S (2003) Studi etnobotani pemanfaatan jenis-jenis tumbuhan sebagai bahan obat tradisional oleh masyarakat di Desa Cibunar Kecamatan Rancakalong Kabupaten Sumedang Jawa Barat. Biotika 2: 22-23.
10. Julian, Riza L, Mukarlina (2013) Pemanfaatan tumbuhan yang berpotensi sebagai sumber pangan di Gunung Peramas Desa Pangkalan Buton Kecamatan Sukadana Kabupaten Kayong Utara. Jurnal Protobiont. 2:117-121.
11. Kodir A (2009) Keanekaragaman dan bioprospek jenis tanaman dalam sistem kebun talun di Kasepuhan Ciptagelar, Desa Sirnaresmi Kecamatan Cisolok Sukabumi Jawa Barat. Tesis. Institut Pertanian Bogor.
12. Kurniawati TE, Masnur T, Lovadi I (2015) Kajian Pemanfaatan Buah Edibel Suku Dayak Banyadu di Hutan Tembawang Desa Setia Jaya Kecamatan Terian Kabupaten Bengkayang. Jurnal Protobiont 4:10-16.
13. Manabendra DC, Meenakshi B, Shyamali SL (2010) Some antipyretic ethno-medicinal plants of Manipuri community of Barak Valley, Assam, India. Ethnobotanical Leaflets 14: 21-28.
14. Meliki, Riza L, Irwan L (2013) Etnobotani tumbuhan obat oleh Suku Dayak Iban Desa Tanjung Sari Kecamatan Ketungan Tengah Kabupaten Sintang. Jurnal Protobiont. 2:129-135.
15. Mirawati, Eny Y (2014) Tumbuhan berguna pada masyarakat percampuran di Desa Lemo Utara Kecamatan Ampibabo Kabupaten Parigi Moutong Sulawesi Tengah. Biocelebes

8:29-36.

16. Munziri, Riza L, Mukarlina (2013) Studi etnobotani bambu oleh masyarakat Dayak Kanayan di Desa Sahan Kecamatan Sengah Temila Kabupaten Landak. Jurnal Protobiont. 2:112-116.
17. Rahayu M, Siti S, Diah S, Suhardjono P (2006) Pemanfaatan tumbuhan obat secara tradisional oleh masyarakat lokal di Pulau Wawonii Sulawesi Tenggara. Biodiversitas 7:245-250.
18. Rasna IW (2010) Pengetahuan dan sikap remaja terhadap tanaman obat tradisional di Kabupaten Buleleng dalam rangka pelestarian lingkungan: Sebuah kajian ekolinguistik. Jurnal Bumi Lestari 10: 321-332.
19. Revathi P, Parimelazhagan T (2010) Traditional knowledge on medicinal plants used by the Irula tribe of Hasanur Hills, Erode District, Tamil Nadu, India. Ethnobotanical Leaflets 14: 1361-60.
20. Sabrina S, Annalisa T (2014) Wild food plants traditionally consumed in the area of Bologna (Emilia Romagna region, Italy). Journal of Ethnobiology and Ethnomedicine 10: 69. doi:10.1186/1746-4269-10-69
21. Senoaji G (2010) Pengelolaan lahan dengan sistem agroforestry oleh masyarakat Baduy di Banten Selatan. Jurnal Bumi Lestari 12: 283-293.
22. Setyowati FM (2010) Etnofarmakologi dan pemakaian tanaman obat suku Dayak Tunjung di Kalimantan Timur. Media Litbang Kesehatan 20: 104-112.
23. Siswadi, Taruna T, Purnaweni H (2011) Kearifan lokal dalam melestarikan mata air (studi kasus di Desa Purwogondo, Kecamatan Boja, Kabupaten Kendal). Jurnal Ilmu Lingkungan 9: 63-68.
24. Smith RL (1990) Ecology and field biology 4. New York, Harper and Row.
25. Song MJ, Kim H, Lee BY et al. (2014) Analysis of traditional knowledge of medicinal plants from residents in Gayasan National Park (Korea). Journal of Ethnobiology and Ethnomedicine 10: 74. doi:10.1186/1746-4269-10-74
26. Jaringan Dokumentasi dan Produk Hukum Kabupaten Kerinci (1993) Surat Keputusan Bupati Kepala Daerah Tingkat II Kerinci Nomor: 226 Tahun 1993. http://jdih.kerincikab.go.id. Accessed: March 2016.
27. Takoy DM, Riza L, Irwan L (2013) Tumbuhan berkhasiat obat suku Dayak Seberuang di kawasan hutan Desa Ensabang Kecamatan Sepauk Kabupaten Sintang. Jurnal Jurnal Protobiont 2: 122-128.
28. Utami S, Haneda NF (2010) Pemanfaatan etnobotani dari hutan tropis bengkulu sebagai pestisida nabati. Jurnal Manajemen Hutan Tropis 16: 143–147.
29. Waluyo EB (2004) Pengumpulan data etnobotani. In: Rugayah, Widjaja EA, Praptiwi. Pedoman Pengumpulan Data Keanekaragaman Flora. Bogor, Pusat Penelitian Biologi LIPI.
30. Yeni N, Irwan L, Riza L (2015) Tumbuhan berpotensi bahan pangan di Desa Sebangun Kecamatan Sebawi Kabupaten Sambas. Jurnal Protobiont 4 (1): 151-159.

Appendix 1

Table 1. Category value of the quality or usefulness of useful plant species

No.	Using Descriptions	Using values
	The main food	
1.	Staple Food	5
2.	Secondary Foods	4
3.	Tubers	4
4.	Foodstuffs in the form of rods, leaf, shoots, flowers and sprouts	4
5.	Foodstuffs such as fruits and grains	4
6.	Foodstuffs in the form of buds, plant shoots, and other parts	4
7.	Materials eat mushrooms are not poisonous	4
8.	Groceries which is only used at the time of famine. lack of food	4
9.	material drinks	4
	Wild foods used	
10.	A flavor enhancer, spices and other flavor enhancer	3
11.	Food supplements as a mixed form of diet, wrapping material, and other materials used in the preparation of foodstuffs	3
12.	Staple	3
13.	Animal feed and pet food	3
	The main resource materials	
14.	Wood building materials, container material	4
15.	Wood fuel	4
16.	Fiber materials, clothing materials, and traditional craft materials or technology	4
17.	Bark as containers and construction	4
	Secondary resource materials	
18.	Producers of materials useful for the treatment	3
19.	Dye, tattoo, decorations and cosmetics	3
20.	Material deodorants and cleaning materials	3
21.	Adhesive, rope, and waterproof material	3
22.	Material as the base, mat material, wiping material, and dressing material	3
23.	A mixture of a variety of useful materials	3
	Material medicines	
24.	Tonics, drugs refreshing and stimulating	3
25.	Purgatif, Laxatives, emetic	3
26.	Ingredients for fever, Cough, Tuberculosis and influenza	3
27.	Cleaning materials wounds and burns	3
28.	Arthritis drug substance, rheumatism, joint pain and paralysis	3
29.	Drug urinary tract diseases	3
30.	internal deseases medicine	3
31.	Drug eye infections	3
32.	Reproductive medicine for women, Obstetrics, and gynecology	3
33.	Special children's medicine	3
34.	Cancer drug	3
35.	Liver disease drug, circulation and blood pressure	3
36.	Anti-irritation	3
37.	Analgesic or anesthetic	3
38.	Anti-venom	3
39.	Upset stomach / digestive problems and dysentery	3

40.	Drug for sex drive (aphrodisiac)	3
41.	Drug ear infections	3
42.	Drug fever and malaria	3
43.	Toothache medicine	3
44.	Drugs for animal diseases	3
45.	Drug skin infections and skin care	3
46.	Drug unknown disease	2
	Ritual or Spiritual	
47.	Birth-ritual	2
48.	Initiation rites	2
49.	Ritual death, bravery, heroism in the war between tribes	2
50.	Treatment-ritual	2
51.	Ritual hunt, fishing and agricultural activities	2
52.	The main ingredient for ritual	2
53.	The kind that specifically only used for traditional rituals / healing	2
54.	As a talisman, a sign of love (symbol), friendship, rain repellent material ritual	2
55.	Plant species utilized in the supernatural or myth	2
56.	Plant species utilized in the supernatural or magical myth or religious	2
57.	Plant species have naturally rule in a myth or history	2
58.	Totem purposes, symbol dance	2
59.	Mystical or traditionally associated with animals	2
60.	Mix material	2
61.	For pleasure, environmental indicators, a person's name, village etc.	2
62.	Valuable crop or value	2
63.	Plants that specifically is not known usefulness but have a beautiful picture or resemblance to other plant species	2
64.	Plants that have no value, but it is not used exclusively or sometimes highly specialized or have exceptions. Plants are not valuable or worthless or unknown point by anyone.	2

Table 2. Category value of the intensity of use of plant species useful

No.	Category	Value
1.	The intensity of use is very high; namely the types of plants that are used in everyday life. Used regularly almost every day in meeting their needs	5
2.	High intensity use; covering the types of plants that are used in everyday life. Used on a regular basis daily or in the time scale	4
3.	Moderate intensity use; the use of plant species on a regular basis but in certain times. For example, the use of which is seasonal. Usually these types mixed-extracted or if the result is excess can be sold and purchased	3
4.	Low intensity use; the types that are rarely used and does not have any effect on people's daily lives	2
5.	The intensity of use is very rare; the types of plants that are minimal or very rarely used in everyday life	1

Table 3. Category Value of exclusivity or preference level and needs of useful plants

No.	Category	Value
1.	Covering a plant species that became the main component and a very important role in the culture. These varieties have the most preferred utility and use value is not replaced by another kind.	2
2.	The types of plants that are useful preferred but can be replaced with another type if the type is not there	1
3.	The types of plants are useful only as a secondary requirement with A lower value	0.5