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# Survey on Agricultural Biological Resources and Traditional Cultural Knowledge of Hani People in Yunnan

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**Abstract** In 2007–2008, a systematic survey, collection and arrangement was carried out for agricultural biological resources and traditional cultural knowledge of Hani People in 8 counties, 15 towns, and 23 village committees of Yunnan Province. A total of 299 samples were obtained about agricultural biological resources related to production and living of Hani People. According to purpose of utilization, samples were divided into grain crops, medicinal plants, vegetables, fruit trees, and oil crops, taking up 48.2%, 21.7%, 18.4%, 7.7%, and 2.0% of the samples respectively. The survey indicated that planting industry and breeding industry take up the dominant role in rural social economy of Hani People, so agricultural biological resources are the fundamental means of production maintaining rural social development of Hani People. The current situation of agricultural biological resources of Hani People in Yunnan, reasons for growth and decline were analyzed, and the utilization, protection and development of agricultural biological resources were discussed.

**Key words** Hani People, Agricultural biological resources, Traditional knowledge, Survey

## 1 Introduction

Hani is also called Kaduo, Zhini, Haoni, Biyue, Aini, Budu, and Baihong. Hani People live mainly in the high plateau of southwestern Yunnan Province<sup>[1]</sup>. The Hani legend tells that their ancestors are nomads from the south of Dadu River in today's Sichuan Province in the 3rd century BC. They gradually migrated south and settled in today's Yunnan Province. In the 1950s, these names were collectively to Hani People. According to the fifth national population census in 2000, the total population of Hani in China is 1.4397 million. In Yunnan Province, there are 1.425 million Hani People, accounting for 98.98% of the whole Hani People. According to distribution characteristics of Hani People, we surveyed agricultural biological resources in 60 counties of Yunnan Province, and made a systematic survey of 40 counties of them. Among these 40 counties, 8 counties, namely, Yuanjiang, Jiangcheng, Yuanyang, Jinping, Menghai, Lancang, Menglian, and Jinggu, have distribution of Hani People, and the first four counties are concentrated areas of Hani People. In 2007–2008, we surveyed 23 village committees in 15 towns of the 8 counties (as listed in Table 1) to study the current situation of agricultural biological resources in Hani People in Yunnan and their function in rural social and economic development.

## 2 Methods of survey

### 2.1 Agricultural biological resources

In the light of *Techni-*

*cal Regulation on Collection for Crop Germplasm Resources*<sup>[2]</sup>, we collected seeds, seedlings or plants, stem tubers or branches of various crop genetic resources of four types of crops or plants, namely, grain crops, vegetables, fruit trees and medicinal plants, using similar sampling process or steps of Qiu Yang *et al*<sup>[3]</sup> and Zhang Linhui<sup>[4]</sup> *et al*.

**2.2 Traditional knowledge of agricultural biological resources** With reference to plant genetic resource knowledge or traditional knowledge collection method stated in *Indigenous Knowledge and Agro-biodiversity*<sup>[5]</sup> and *Applied Ethnobotany*<sup>[6]</sup>, we prepared questionnaire, interviewed villagers, recorded villagers' identification, cultivation, management, and experience of using local agricultural biological resources, and constantly improved and enriched the questionnaire in the process of survey and record.

## 3 Results and analyses

**3.1 Major agricultural biological resources managed and used by Hani People** In 2007–2008, we surveyed and collected samples of agricultural biological resources, such as grain crops, fruit trees, and medicinal plants closely related to production and living of Hani People in 8 counties, 15 towns, and 23 villages in Yunnan Province, and we made a record of Hani People's traditional knowledge about using these agricultural biological resources. We collected a total of 299 samples of various agricultural biological resources (Table 2). There are 144 samples of grain crops including rice, corn, beans, wheat, coarse cereals, and tuber crops (accounting for 48.2%), 55 samples of vegetable resources (accounting for 18.4%), 21 samples of fruit trees and 2 samples of perennial cash crops (tea) accounting for 7.7%, 65 samples of medicinal plants accounting for 21.7%, 6 samples of oil crops accounting for 2.0%, and 6 samples of others.

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**Table 1 Basic data of agricultural biological resources of 23 Hani People in Yunnan Province**

County	Town (Township)	Village committee	Altitude m	Rainfall mm	Total household	Total population	Hani People		Source of eco- nomic income
							Population	Percentage	
Menghai	Xiding	Manlai	1650	1640	358	1622	1290	80	Planting industry
Yuanyang	Niujiaozhai	Liangxinzhai	1460	1500	993	4512	2853	63	Planting industry and breeding industry
	Xinjie	Tugezhai	1700	1500	700	3197	1704	53	Planting industry
	Huangcaoling	Hageng	1460	1500	396	1684	1684	100	Planting industry and forestry
		Shupi	1320	1500	698	3115	3115	100	Planting industry and breeding industry
Jinping	Adebo	Gaoxingzhai	1410	2700	1117	5111	4179	82	Planting industry
		Jingkou	1530	2650	455	1992	1579	79	Planting industry
Lancang	Donghui	Donggang	1440	1943	872	3421	2146	63	Planting industry
		Jiujing	1400	1700	843	3542	2423	68	Planting industry and breeding industry
Yuanjiang	Yangchajie	Dan'gong	1650	1500	705	2979	2786	94	Planting industry
		Tuantian	2000	2200	310	1128	813	72	Planting industry
	Nanuo	Langshu	1350	1400	567	2641	2641	100	Planting industry
		Hashi	1600	1500	766	3463	3463	100	Planting industry
Jinggu	Yangjie	Bamu	1750	1500	977	4427	4302	97	Planting industry
		Fengshan	1440	1560	561	2339	941	40	Planting industry
		Wenshao	1220	1550	332	1479	792	54	Rosin and breeding industry
		Wenzhe	1080	1450	386	1612	886	55	Planting industry
Menglian	Mangxin	Chahe	1100	2273	358	1686	694	41	Planting industry and breeding industry
Jiangcheng	Guoqing	Tianfang	950	2000	434	1923	938	49	Planting industry and animal husbandry
	Kangping	Mankelao	950	2004	538	2159	894	41	Planting industry and animal husbandry
		Zhongping	960	2177	123	533	453	85	Planting industry
	Qushui	Longtang	660	1800	440	1914	1914	100	Planting industry
		Nuna	840	2117	133	630	630	100	Planting industry and breeding industry
		Tianxin							

**Table 2 Classification of samples of agricultural biological resources in Hani People settlement area**

Crop species	Quantity of samples	Crop species	Quantity of samples	Crop species	Quantity of samples
Rice	57	Coarse cereals	18	Oil crops	6
Corn	29	Tuber crops	3	Tea	2
Wheat	2	Fruit trees	21	Medicinal plants	65
Beans	35	Vegetables	55	Others	6

**3.1.1 Grain crops.** Based on our survey in 23 Hani villages, grain crops they plant mainly include rice, corn, beans, wheat, tuber crops, and coarse cereals. The quantity of samples of grain crops are 144, accounting for 48.2% of the total. We collected 57 samples of rice, accounting for 39.6% of the total grain crop samples, mainly from Jiangcheng and Yuanyang counties, accounting for more than 72% of total rice resources. Details of the survey in 15 Hani towns are as follows: no rice resources: 3 towns; corn resource: 6 towns; no beans: 6 towns; no coarse cereals: 7 towns; wheat resources: 1 town (indicating that Hani People plant and keep many local rice varieties, and the next is corn); Xinjie Town: 14 rice samples; Kangping Town: 5 corn samples; Yangchajie Town: 10 bean samples; Donghui Town: 5 coarse samples. Those towns keep or plant different grain crops (shown in Fig. 1). Apart from different geographical, climatic and soil conditions, long lasting of planting and food habits are essential reasons. For local rice variety, since local traditional varieties feature low yield and high plant, and are vulnerable to lodging, villagers prefer to plant hybrid varieties which can increase yield and income. Local villagers plant hybrid varieties in fertile farmland, but also plant few local varieties according to their necessity. Corn

and beans (such as broad bean, pea, rice bean, and Kidney bean) are originally the supplement of grain and have relatively low economic value. With constant increase in rice yield, rice is enough to satisfy grain ration of Hani People. Besides, corn planting has conflict with cash crops such as flue-cured tobacco and sugarcane in competing for land. Therefore, the planting area of corn and beans is diminishing.

**3.1.2 Vegetable (wild vegetable) resources.** Hani People plant few types of vegetable mainly in front or behind of their house or on ridges, such as leaf mustard, cabbage, radish, melons, beans, and taro. Most types of vegetables they eat are wild vegetable collected from the forest, such as *Pteridium aquilinum var. latiusculum*, *Sauropus androgynus*, *Crateva unilocularis*, *Acacia intsia*, *Oenanthe javanica*, *Houttuynia cordata*, *Asiatic plantain*, Leaf of *Champion Bauhinia*, *Parochetus communis*, and *Pyrus betulaeifolia* Bge<sup>[7]</sup>, etc. In the survey, a total of 55 accessions of vegetables were mentioned and used by the Hani. Among them, 11 are solanaceous vegetable, 13 are melons, 5 are leaf vegetable, 5 are allium chinense, 5 are tuber crops, 3 are root types, 4 are leaf mustards, 2 are cabbages, and 7 are wild vegetable. Local vegetable varieties they keep and plant are leaf mustards, Chinese cabbage, Chinese radish, Chinese chives, ginger, garlic, pumpkin, and kidney bean, and other local varieties are replaced by new cultivated varieties. Due to constant increase of population, reclamation of mountain land, and invasion of exotic species (like *Agrotaria adenophora*), use of herbicide and excessive collection, wild vegetables are becoming fewer and fewer species. Some species of wild vegetables commonly eaten and easily cultivated have been successfully domesticated by the Hani.

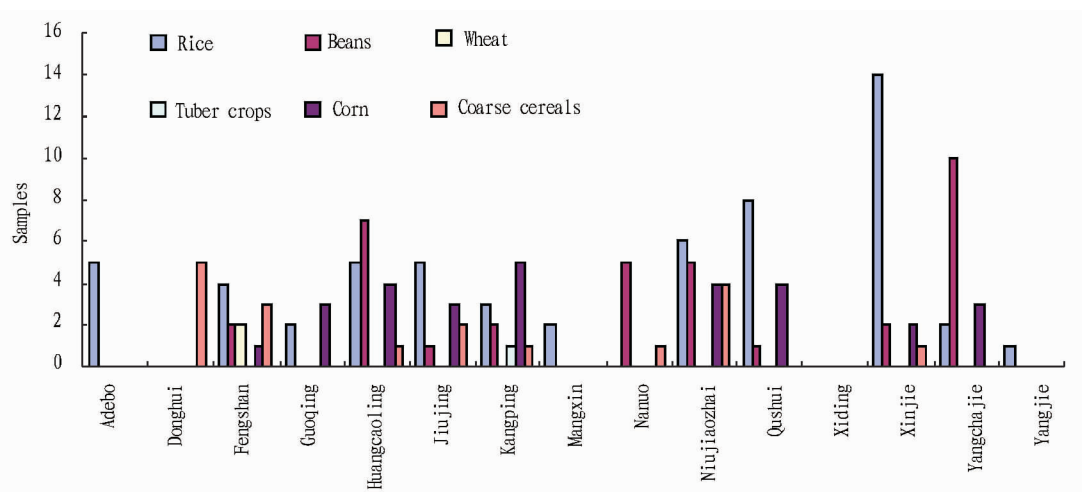


Fig.1 Comparison of samples of grain crops kept and planted in 15 towns of Hani People

**3.1.3 Fruit trees and perennial cash crops.** Due to influence of ecological environment and climatic factors, fruit trees planted by the Hani are varied with regions. In general, those living in middle mountain area mainly plant temperate fruits, such as pear, peach and plum. A total of 21 samples of fruit trees were collected, of which, 3 species of wild fruits they eat are *Baccaurea rami-flora*, Lour and Common Camptotheca Fruit. Jiujing Town of Lancang County has plentiful rainfall, abundant sunshine, and temperate climate, suitable for planting of tea and sugarcane. Tea, sugarcane, *Docynia delavayi* and haw berry have become major characteristic cash crops of Yangchajie Town of Yuanjiang County and sugarcane has become a pillar industry of local area.

**3.1.4 Medicinal plant resources.** Hani People live in remote mountain area and half-mountain area. For survival and development, they have the tradition of using local plants to prevent and cure some diseases. They have accumulated rich knowledge of recognizing and using medicinal plants. Some knowledge is rarely known by the people. We collected a total of 65 samples of medicinal plants used for contusions and strains, rheumatic arthritis, gastritis, stomach-ache, and gynecological inflammation, etc. They have the habit of using medicinal plants as tea and vegetable. For example, Lengshuizhai Villagers of Shupi Village in Huangcaoling use *Herba Sarcandrae* of *Chloranthaceae* plants as tea. It is said that putting 10g *Herba Sarcandrae* into pot and add 300 ml water to boil; after cool drinking it has the effect of clearing away heat and detoxicating, stimulating the menstrual flow, preventing flue, curing dysentery, pneumonia, fracture, and rheumatic arthritis, etc. Besides, it can be collected in the whole year and stored after drying. In local area, it has a history of more than 300 years.

Although the samples collected account for only 21.7% of total samples, and species of these medicinal plants have no distinct change, the number of medicinal plants Hani People can collect in wild field decreases considerably. In addition, with extension of the rural cooperative medical system, convenience of Western medicines, improvement of rural grass-roots medical condition,

and improvement of operation skill of medical workers, many private Chinese herbal medicine doctors have become engaged in Western medicine, so the people recognizing and using medicinal plants will become fewer and fewer.

### 3.2 Traditional cultural knowledge for improving and using agricultural biological resources of Hani People

**3.2.1 Traditional knowledge about edible agricultural biological resources.** (i) Pickled vegetable. Pickled vegetable is an essential side dish of Hani People in Xinping County. They have the tradition of pickling local leaf mustards. (ii) Glutinous rice wine. Glutinous rice wine can be drunk with cool boiled water, or eaten with glutinous rice baba and cooked eggs. (iii) Tea. Hani People drink tea by cooking instead of making tea. Generally, they cook tea one time a day, and also drink one time without adding water. Aini People (local name of Hani People) in Xishuangbanna like freshly picked old tea leaves. They firstly bake tea leaves to slightly yellow or burned state, and then put into boiling water to boiled state. Such tea is bitter and astringent, but it can relieve heat and thirst. (iv) Hani food seasoning. Food seasoning is essential condiment of Hani People. As long as in important festivals or visit of honored guest, hosts will provide the dip-in-water. Also, they provide different dip-in-water according to different types of food. Some foods vulnerable to taint of taste will not use the same dip-in-water. (v) Hani fermented soya bean. In Ailaoshan Mountain area, there is saying goes that they would rather eat the fermented soya bean than eat oil. The fermented soya bean is even called "gourmet powder" of Hani People, indicating the important role of fermented soya bean in Hani People's diet culture. (vi) Baiwang. Baiwang is a famous dish of Hani People and also a delicious dish of Hani People entertaining guests. (vii) Fried glutinous rice blocks. Fried glutinous rice blocks are unique food of Hani People in New Year Festival. (viii) Bamboo shoots. Hani People like eating bamboo shoots, including pickled, dried, pressed bamboo shoots, and flower of bamboo shoots, etc.<sup>[8]</sup>. (ix) Second cooked rice. Hani People like eating second cooked rice, i. e. the steamed rice. Such steamed rice keeps nutrition of rice, moist and

tasty and resisting hunger. So it is popular with Hani People and those frequently eating steamed rice are reputed as rich people.

**3.2.2** Knowledge of making wine. Hani People in Yunnan has a long history of making wine. They call their distilled wine as "Men Guo Wine". Raw materials of Men Guo Wine are corn, sorghum, rice and buckwheat. Firstly, soak raw materials in clean water, pull the raw materials out, spread them out and dry, sprinkle some distiller's yeast, put them into pot or jar, stick the cap with rice straw to seal the raw materials for fermentation. In summer, fermentation only takes 3 – 5 days; in winter, fermentation takes 10 – 15 days. Till there is flow of juice, move them to wooden steamer in which a vessel for accepting wine is placed; seal the gap with plant ashes between the steamer and pot, and change the water in the iron pot above the steamer to keep the water cold. When the water in steamer is boiled, the steam in the steamer will rise, the steam gets condensed to wine drip, and then falls to the vessel, the liquid is Men Guo Wine. The output rate of Men Guo Wine is as low as 30%, but the sweet perfumes are diffused all around, it is mellow and popular, and is thus reputed as Maotai of Hani People.

**3.2.3** Cloth dyeing knowledge. Hani People has a long history of processing indigo with dyeing plants. At funerals and important sacrifices, they have the custom of wearing traditional clothes dyed with indigo. They think this can be approved by ancestors and divinities. Plants they use for dyeing are mainly two types: one is *Baphicacanthus* and the other is *Indigofera mentzeana*. Firstly, soak the leaves of dyeing plants for 3 days, put lime and stir, precipitate for one day, pour the upper layer clean water, put the white cloth into the precipitated dyestuff and soak for 12 hours, take the cloth out, then put the cloth into the precipitated dyestuff and soak, repeat this procedure for about 10 times, it can dye white cloth to black or blue cloth. Although such cloth will fade, all Hani People will have a set, to celebrate festivals or take part in weddings or funerals.

**3.2.4** Knowledge about cultivation and domestication. Hani People plant few types of vegetable mainly in front or behind of their house or on ridges. They mainly plant common vegetables, such as leaf mustard, Chines cabbage, radish, beans, taro and pumpkin. Most of vegetables they eat are wild species collected from the fields or forests, such as wild edible fungus, bamboo shoots and other wild vegetables. In the long time of production and practice, Hani women often collect and use wild vegetable, such as *Mentha haplocalyx* Briq., *Elsholtzia kachinensis*, *Eryngium foetidum*, lemongrass (*Cymbopogon citratus*), *Zingiber mioga*, *Houttuynia cordata*, *Eleutherococcus senticosus*, *Cyphomandra betacea* Sendtn, *Toona sinensis*, and *Crateva unilocularis*. Some of these can be used as vegetable and palisade. Hani People domesticated them and introduced them to their courtyard for convenience of management and eating. Their courtyard and open space in the villages become important place for domestication of wild plants and ex situ protection. To a great extent, this reduces collection and use pressure of local Hani People for wild plant re-

sources, and promotes protection of original habitat for local wild edible plant resources. Therefore, their purposeful cultivation and domestication activity is an essential non-governmental participation of ex situ protection of wild edible plants. Apart from wild vegetable, it was told by folk doctor Zhu Qidou that they directly used medicinal plants collected from field and domesticated medicinal plants for curing contusions and strains, abdominal pain, flu, and stomach ache, *etc.* This not only satisfies demand of doctors for practicing medical operation, but also protects diversity of agricultural biological resources.

**3.2.5** Knowledge of using rice straws and wormwood. When planting *Allium chinense*, Hani People of Adebo Town of Jinping County will lay rice straws and burn straws to take the ash as fertilizer and raise the ground temperature, to facilitate sprouting and growth of *Allium chinense*. At the same time, high temperature generated from burning will kill some weeds and parasites, to reduce pests and weeds after sprouting of *Allium chinense*. When raising pepper seedlings, they usually lay sweet wormwood above soil to keep water and prevent evaporation of surface water, inhibit growth of weeds, and the decayed wormwood leaves can provide necessary fertilizer for growth of pepper seedlings.

**3.2.6** Indigenous method of making tea<sup>[9]</sup>. Hani People love drinking tea. The pan fried green tea and the scented tea in bamboo box they usually drink are hand made. The pan fried green tea needs complex processing step. Firstly, dry the freshly collected tea leaves in open air for one hour; heat the iron pot to very hot temperature, put the tea leaves into the pot and stir ceaselessly, and gradually lower the pot temperature. After heat treatment, put them out and place into a dustpan, rub with hands, to make them curl to strips, the thinner the better, then put them into the pot again, and bake the tea leaves to dry state. This completes the processing of green tea of Hani People. Such tea tastes fragrant, resists hunger and endures soaking. Compared with the pan fried green tea, The aged Hani people prefer the scented tea in bamboo box. The process of scented tea in bamboo box is also complex. It tastes between black tea and green tea. The tea takes on yellowish green and has light fragrance. It has function of refreshing and relaxing.

## 4 Discussions

**4.1 Single industrial structure and traditional cropping system restrict steps of rural social and economic development of the Hani** Data from 23 villages in 15 towns of 8 counties shows that the proportion of income from planting to total rural economic income in 14 villages is above 50%, 6 villages are between 40 – 50%, 2 villages are between 30 – 40%, and only one village is below 30%. Apart from Tugezhai of Xinjie Town in Yuanyang County (35.97%), the proportion of income of secondary and tertiary industries to total rural economic income is 20 – 30% in 2 villages, 10 – 20% in 6 villages, and the rest are below 10% (as listed in Table 3). In general, larger part of economic income of Hani villages depends on development of planting industry. Only

few villages have certain foundation of forestry and animal husbandry development. There is regional difference of secondary and tertiary industry development. The proportion of secondary and tertiary industry to total rural economic income is relatively low in many villages. These statistical data indicate that rural economic development of Hani villages relies mainly on planting. Therefore, most labors are used in traditional agricultural farming and management, thus restricting the development of rural economic and social development. Apart from single economic structure, inappropriate land farming system is also a factor hindering social and economic development of Hani. Terrace is a major culture method of rice planting for the Hani People. And it is an essential part of

their rice farming cultures<sup>[10]</sup>. However, this cropping system wastes land and water resources, and is not good for fully using their advantages and maximizes the economic benefit. Therefore, it is required to suit measures to local conditions on the condition of ensuring grain security, make proper cultivation in proper land, make proper agricultural regional development plan, develop one product in one village and one industry in one village, gradually adjust rural industrial structure, actively expand development channel of secondary and tertiary industries, improve crop planting distribution, develop economic crop and fruit and forest industries. These are the key points for realizing sustainable social and economic development of Hani People.

**Table 3 Economic income of Hani People villages in 2008**

County	Town (Township)	Village committee	Total rural economic income 10 <sup>4</sup> yuan	Income from planting 10 <sup>4</sup> yuan	Income from animal husbandry 10 <sup>4</sup> yuan	Income from forestry 10 <sup>4</sup> yuan	Income from secondary and tertiary industries 10 <sup>4</sup> yuan	Per capita net income yuan
Menghai	Xiding	Manlai	279.75	198.60	22.70	5.00	12.40	1672.00
Yuanyang	Niujiaozhai	Liangxinzhai	1102.00	367.00	321.00	67.00	193.00	1906.00
		Tugezhai	572.66	176.06	162.33	7.00	206.00	912.00
	Huangcaoling	Hageng	324.00	137.00	122.00	25.00	26.00	970.00
		Shupi	755.00	351.00	210.00	15.00	81.00	1836.00
Jinping	Adebo	Gaoxingzhai	934.20	563.50	193.00	61.00	65.00	1349.00
		Qingkou	430.10	229.10	89.00	31.00	49.00	1352.00
Lancang	Donghui	Donggang	678.36	493.36	130.25	23.78	30.37	2074.42
		Jiufang	863.51	434.86	226.00	7.63	140.73	1314.00
Yuanjiang	Yangchajie	Dan'gong	633.00	314.00	113.00	57.00	0.00	1621.00
		Tuantian	314.00	221.00	67.00	7.00	0.00	1392.00
	Nanuo	Langshu	637.00	377.00	160.00	32.00	0.00	2003.00
		Hashi	768.00	569.00	60.00	17.00	0.00	2131.00
Jinggu	Yangjie	Bamu	1022.00	645.00	27.00	12.00	0.00	1204.00
		Fengshan	358.00	191.00	53.00	100.00	9.00	1119.00
		Wenshao	234.00	66.00	40.00	87.00	22.00	1298.00
		Wenzhe	472.60	400.02	37.26	9.91	18.00	1493.00
Menglian	Mangxin	Chahe	413.00	273.60	122.00	2.30	2.50	1346.00
Jiangcheng	Guoqing	Tianfang	391.00	181.00	80.00	25.00	92.00	1600.00
	Kangping	Mankelao	432.63	251.00	90.00	0.00	76.14	1530.00
		Zhongping	135.70	57.00	16.50	3.50	35.70	1087.00
	Qushui	Longtang	238.00	153.00	35.50	2.30	14.80	1138.00
		Nuna	108.00	53.10	30.00	2.50	20.60	1016.00

#### 4.2 Changes of production and living of Hani People lead to gradual decrease of agricultural biological resources

With popularization and use of new crop varieties and new technologies in Hani People settlement, damage and degradation of ecological environment, conflict between population growth and farmland decrease and low yield, penetration and integration of different ethnic culture, as well as changes of production and living style and concept of Hani People, the varieties and quantity of agricultural biological resources are constantly decreasing, and traditional farming culture is gradually being discarded. The census of agricultural biological resources carried out by Yuanjiang Bureau of Agriculture shows that rice planted in this county included 9 local varieties in 1956, it reduced to 7 in 1982, and only 2 in 2006. In

1956 – 1982, there was basically no change in local corn varieties planted in large area, but the quantity decreased from 5 to 1 in 2006. In 1956, there were five varieties of wheat (except Nanda 2419, 4 were local varieties); in 1982, all were replaced by new varieties or no wheat was planted. These indicate that germplasm resources such as rice, corn and wheat of Hani People are disappearing at astonishing speed. On the one hand, it reflects improvement of modern agricultural science and technology and crop breeding level; on the other hand, it reflects high homogeneity of major crops with other regions and lack of heterogeneity and diversity, which increases vulnerability to plant diseases and insect pests. In addition, with adjustment and improvement of planting structure in Hani People settlement, some cash crops, such as

sugarcane, flue-cured tobacco, mango, green jujube, litchi, banana and pineapple, and flowers such as aloe and jasmine will be planted in large area<sup>[11]</sup>, and then other agricultural biological resources with low economic value will gradually disappear. Therefore, it is an important and difficult issue to economically and effectively collect and protect local agricultural biological resources in management and use, make a record of their traditional knowledge, bring into play their functions in local social and economic development, so as to protect agricultural biological resources and farming culture of Hani People. Besides, it is required to carry out registration and protection of geographical identification for agricultural products, build regional superior brands of agricultural products, raise market competitiveness of agricultural products, and increase farmers' income. Further, it is required to promote regional economic development and protect characteristic crop resources.

### 4.3 Developing folklore tourism and protecting traditional knowledge of agricultural biological resources of Hani People

Hani People transform nature and integrate natural and human factors. It has the marvelous spectacle, Hani terrace. Besides, there are many marks of Hani ethnic custom and traditional culture, such as Mushroom House, Sacred Forest, Palm Woods, Bamboo Grove, Tea Garden, Terraced Rice Fields, Village Door, Reservoir, Water-powered Roller, Water-powered Trip-hammer, Water Mill, and *etc.* Hani terrace is not boundless and magnificent, and it keeps complete "forest, village, terrace, and water" paddy field ecosystem, contains profound farming culture, and manifests the heaven on earth<sup>[12]</sup>. Therefore, relying on terrace, colorful ethnic custom and unique diet culture, it is required to conduct terrace culture and folk tourism experience, have a taste of Hani fermented soya bean, dip-in-water, Baba, Baiwang, bamboo shoots, wild edible fungus, and Menguo Wine, and visit Hani clothes, Mushroom House, and experience Long-dragon Banquet, Kuzhazha (Pray for a good harvest), and Hani's New Year<sup>[13]</sup>. In

all, it is recommended to carry on terrace culture, fire pit culture and Beima culture, protect traditional culture of Hani People, increase economic income of Hani villagers, and rapidly improve rural economic development of Hani People.

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(From page 59)