Southern Elements in Qimin Yaoshu

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Abstract

Qimin Yaoshu, authored by Jia Sixie of the Northern Wei Dynasty, stands as a classic among classics in traditional Chinese agronomy and constitutes important historical source material for the study of ancient Chinese history. The text comprises ten volumes; except for the tenth volume, titled "Grains, Fruits/Gourds, and Vegetables Not Native to China," the implication is that the contents of the first nine volumes should be considered products of the so-called "China" under Northern Wei rule. Consequently, Qimin Yaoshu is also regarded as an agricultural work reflecting farming in the Yellow River basin of ancient China—that is, a northern agricultural text. However, careful examination of its contents reveals numerous non-typical northern elements, such as rice, fish, bamboo, citrus, water shield (Brasenia schreberi), lotus, fox nut (Euryale ferox), water caltrop (Trapa), wild rice (Zizania latifolia), Chinese cabbage, ginger, yuan fruit, Vietnamese melon, mountain pomegranate (rhododendron), water buffalo, and others. Apart from the possibility that the northern environment of the time may have provided conditions for the existence of some of these elements, aspects such as place names, rice cultivation techniques, and fish distribution all demonstrate the involvement and presence of certain southern influences. This article proceeds from products and techniques to reveal these southern agricultural elements within the text, exploring their pathways into the north, including personnel exchanges and textual transmission, thereby illuminating a dimension previously overlooked in relevant research—namely, the agricultural cultural exchange and technological transmission between northern and southern China.

Full Text

Preamble

Meal Rice and Soup Fish: Southern Elements in *Qi Min Yao Shu*
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Abstract

Qi Min Yao Shu (Essential Techniques for the Welfare of the People), compiled by Jia Sixie of the Northern Wei dynasty, stands as a canonical classic of traditional Chinese agronomy and serves as crucial historical material for studying ancient Chinese history. The work comprises ten chapters. Since Chapter Ten is explicitly titled "Grains, Fruits, and Vegetables Not Native to China," the implication is that the contents of the first nine chapters should represent products of the so-called "China" under Northern Wei rule. Consequently, *Qi Min Yao Shu* has long been regarded as an agricultural treatise reflecting farming practices in the Yellow River basin—a "northern agricultural book." However, careful examination reveals numerous atypical northern elements, including rice, fish, bamboo, oranges, water shield (*Brasenia schreberi*), lotus, fox nuts (*Euryale ferox*), water chestnuts, wild rice (*Zizania latifolia*), Chinese cabbage, ginger, *Yuan* (*Alangium chinense*), Yue melons, mountain pomegranates (rhododendrons), and water buffalo. While these elements may have been possible in the northern environment of the time, evidence from place names, rice cultivation techniques, and fish distribution all point to the intervention and presence of southern factors. This article examines these southern agricultural elements through the lens of products and technologies, explores their pathways into the north—including personnel exchanges and textual transmission—and thereby reveals a previously overlooked dimension: the cultural exchange and technological transmission between northern and southern Chinese agriculture.

Keywords: *Qi Min Yao Shu*; southern factors; products; agriculture

During the Northern and Southern Dynasties period, China's cultural center remained in the north. Northerners, wielding cultural superiority, often held southerners in contempt, yet the rising south increasingly attracted northern attention. A vast array of southern products entered northern writings through hearsay, eyewitness accounts, or oral transmission. *Qi Min Yao Shu*, compiled by Jia Sixie of the Northern Wei dynasty (386–557), exemplifies this phenomenon. Though the work contains ten chapters, with Chapter Ten documenting mostly southern grains, fruits, and vegetables as "non-Chinese products," southern elements also permeate Chapters One through Nine. While scholarly consensus holds that *Qi Min Yao Shu* reflects agricultural techniques of the middle and lower Yellow River region, this study examines the origins of certain contents and their possible connections to southern agriculture.

The "south" referenced here primarily denotes areas south of the Huai River, beyond Northern Wei territory. Focusing on products and technologies, this article investigates southern agricultural elements in *Qi Min Yao Shu* and attempts to trace their northern transmission pathways, thereby illuminating the previously neglected aspect of cultural exchange and technological transmission

between northern and southern Chinese agriculture. It is hoped that this research will not only deepen understanding of northern agricultural history as represented by *Qi Min Yao Shu*, but also shed light on contemporaneous southern agricultural history, compensating for the scarcity of relevant materials.

I. Atypical Northern Elements in *Qi Min Yao Shu*

North of the Huai River, China's northern region exhibits arid and semi-arid conditions due to low rainfall, concentrated precipitation, and strong winter winds. Consequently, dryland crops and limited livestock raising (cattle, sheep) constitute the main agricultural pattern. By contrast, the south, with its abundant rainfall, numerous rivers, and rich water resources, specializes in rice cultivation and pig and fish farming. Sima Qian's *Records of the Grand Historian* contrasts these agricultural economies: "The lands of Chu and Yue are vast but sparsely populated. They eat rice and fish soup, practice slash-and-burn cultivation and water weeding, and gather fruits, melons, clams, and oysters… North of the Yi and Si rivers, the land suits the five grains, mulberry, hemp, and six livestock, though people are numerous and land scarce." This clearly shows rice and fish as southern agricultural specialties, while the five grains, mulberry, hemp, and livestock represent northern agriculture.

Several centuries had passed since Sima Qian's Han dynasty, yet during Jia Sixie's Northern and Southern Dynasties period, the conceptual boundary between northern and southern agriculture had not blurred. Yuan Shen, a representative of northern Chinese gentry during the Northern Wei, mocked southern customs while treating a southern man named Chen Qingzhi, ridiculing southern clothing, food, and lifestyle: "Ghosts of Wu people dwell in Jiankang. They wear small caps and short garments… They eat wild rice and drink tea soup. They sip water shield soup and suck crab roe. They hold cardamom and chew betel nut… Netting fish and catching turtles by the river, they chew water caltrops and gather fox nuts. Frog and mussel soups serve as delicacies. In cloth robes and straw sandals, they ride water buffalo backward… They drift and float with the waves." In northern minds, southerners were labeled with these product tags: wild rice, tea, water shield soup, crab roe, cardamom, betel nut, fish, turtles, water caltrops, fox nuts, frogs, mussels, water buffalo, oars, ramie, etc.—all vastly different from the northern staples of five grains, mulberry, hemp, and livestock. Yet most of these typically southern products appear in *Qi Min Yao Shu*, a work on northern Yellow River agriculture, presenting numerous atypical northern agricultural elements that largely overturn long-held impressions of northern farming.

(1) Rice

Rice originated in the south and, though introduced to the north early, remained insignificant there, being optional among the so-called "five grains" in northern discourse. Rice cultivation accounted for less than 1% of total grain crop acreage in the north. In other words, rice's status in northern agriculture

was incomparable to its role in the south. Yuan dynasty agronomist Wang Zhen also distinguished northern millet and sorghum cultivation from southern rice and glutinous rice cultivation. Modern scholar Qi Rushan stated in *Rural North China* that rice "flourishes in the south; in the north it is only planted near water areas, and even then in small quantities—a world of difference compared to the south." Westerners even viewed rice cultivation as China's north-south dividing line, arguing that "the true boundary between north and south China lies where rice culture prevails… The often-mentioned contrast between north and south China derives not from differences among inhabitants but from the cultivation of staple food crops."

Qi Min Yao Shu contains dedicated chapters on "paddy rice" and "upland rice" in Chapter Two, and cites *Records of Strange Things* and *Yu Yiqi's Notes* in Chapter Ten mentioning double-cropping rice in Jiaozhi that matures twice yearly in summer and winter. Other chapters frequently mention rice or rice grain, such as Chapter Five's "Planting Red Flowers, Blue Flowers, and Gardenias," which uses white rice for making rouge and purple powder. Chapter Six, "Raising Geese and Ducks," states: "After chicks hatch, place them separately in cages. First feed them a full meal of rice gruel, called 'filling the crop.' " Particularly Chapters Seven, Eight, and Nine extensively discuss rice (both non-glutinous and glutinous) processing and consumption. Processed rice foods beyond staple foods include: glutinous rice wine, fermented rice wine, white fermented wine, crude yeast white wine, non-glutinous rice wine, glutinous rice vinegar, eight-flavor sauce, various fish and meat preserves, soups, pickles, fermented rice cakes, dried rice, jujube rice, and more than ten other varieties. When used as a main ingredient, rice quantities were substantial: for divine yeast rice wine, "one dou of yeast uses seven dou of water and 2.4 dan of rice" ; for non-glutinous rice wine, the rice used could reach 2.64 dan . Such large quantities and extensive uses were uncommon in daily northern life. Some scholars estimate that during the medieval period, rice's proportion in North China's grain consumption "was certainly somewhat higher than in later generations."

(2) Fish

"Meal rice and soup fish" represents the most classic description of southern life in ancient literature. People still distinguished "ethnic groups" by lifestyle and diet, with southerners called "fish-and-turtle people." Yet in *Qi Min Yao Shu*, fish holds a prominent position, with possibly the largest coverage and highest frequency of any product. Not only does Chapter Six contain a dedicated "Fish Farming" section, but Chapter Eight has a dedicated "Fish Preserves" section, and Chapter Nine mentions numerous fish-based (plus shrimp and crab) food processing methods. Fish processing quantities were large, measured in dou. Fish preparation methods were diverse, with multiple ways to prepare a single species. Fish also served as a primary ingredient for making sauces, which were widely used in various food preparations. All this indicates fish was among the

most important daily foods.

Qi Min Yao Shu fish-related content includes: Chapter Six's "Fish Farming" on carp cultivation, with appended methods for growing water shield, lotus root, lotus, fox nuts, and water chestnuts. Chapter Eight's "Sauce Making" covers meat sauce, fish sauce, shrimp sauce, and crab preservation, using materials including carp, mackerel, snakehead, pufferfish, croaker, and mullet, plus shrimp and crab. Chapter Eight's "Fish Preserves" discusses fish (and pork) pickling, mainly involving carp. Chapter Eight's "Dried Meat Processing" covers dried meat methods also applied to raw fish, primarily snakehead but unsuitable for catfish or bagrid catfish. Chapter Eight's "Soup and Stew Methods" mentions numerous fish-based soups, such as sliced fish with water shield, wild rice stem fish soup, bamboo shoot fish soup, snakehead stew, carp stew, snakehead soup, and others, using snakehead, whitefish, carp, and other species. Chapter Eight's "Steaming Methods" mentions steamed fish preparations using whitefish and bream. Chapter Eight's "Boiling, Simmering, Frying, and Sautéing Methods" describes four fish preparation techniques using bream and crucian carp. Chapter Eight's "Roasting Methods" covers roasted fish, primarily using whitefish or small bream, plus extensive use of fish sauce. This section also mentions clams, oysters, and other seafood.

The fish species recorded include both freshwater and marine fish, plus some migratory species. Freshwater fish include: carp, mackerel, snakehead, catfish, whitefish, bream, bagrid catfish, and crucian carp. Migratory species include: anchovy and pufferfish. Marine fish include: croaker and other species. By frequency, carp appears most, followed by whitefish and snakehead, indicating freshwater fish were regularly consumed. However, the presence of marine fish and intertidal mollusks like clams, oysters, and other shellfish suggests the content may relate to maritime regions.

(3) Bamboo

Beyond fish and rice, *Qi Min Yao Shu* contains other non-typical northern agricultural elements with clear southern characteristics, bamboo being one. Bamboo mainly grows in subtropical regions. Today, wild bamboo is primarily distributed south of the Qinling Mountains and Huai River, while northern bamboo is mostly transplanted. Historically, bamboo had a wider natural distribution. *Records of the Grand Historian* mentions "a thousand acres of bamboo along the Wei River." After the Han dynasty, as the climate turned colder, northern bamboo distribution decreased. *Bamboo Treatise*, attributed to Jin dynasty author Dai Kaizhi, listed over 70 bamboo species, noting bamboo "dislikes extreme cold, rarely found in the Nine Rivers region, but abundant in the Five Ranges." *Qi Min Yao Shu* cites *Yongjia Records* and other sources on bamboo shoots, referring primarily to southern conditions.

Chapter Five contains "Planting Bamboo," while other chapters mention bamboo tools, baskets, and containers for seed storage, pear grafting, and food

processing. Notably, beyond discussing bamboo "for tools," the text devotes considerable space to bamboo shoot consumption and processing methods. It states: "Bamboo grown in China has only two types: mild and bitter. In the second month, eat mild bamboo shoots; in the fourth and fifth months, eat bitter bamboo shoots. They can be steamed, boiled, roasted, or pickled according to preference." Clearly, the mild/bitter classification is based on taste. Cited materials mention bamboo shoot consumption in Chengdu, Sichuan, and Yongjia (Wenzhou), Zhejiang, showing obvious southern influence. Chapters Eight and Nine mention duck soup with bamboo shoots and pickled bamboo shoots. "Fish Preserves" and "Rice Cake Methods" mention using bamboo leaves to wrap fish preserves and rice dumplings.

(4) Orange

Orange is a typical southern plant. Qu Yuan's poem "Ode to the Orange" states: "The fine tree of heaven, adapted to this land. By decree immovable, born in the southern state. Deeply rooted and hard to transplant, of single purpose." This early recognition of orange as a strongly regional tropical/subtropical tree is reflected in *Qi Min Yao Shu*, which lists orange as a "non-Chinese product," citing *Zhou Li · Kao Gong Ji*: "Oranges transplanted north of the Huai River become trifoliate oranges… this is due to local climate." Other cited records also show oranges were mainly distributed in the Yangtze River region and south. This distribution pattern persisted through the Tang dynasty.

Though the first nine chapters on fruit tree planting contain no oranges, oranges appear frequently elsewhere in *Qi Min Yao Shu*. Chapter Five's "Hand Medicine" requires "ten orange seeds" ; Chapter Eight's fish sauce uses "one handful of orange peel"; orange peel is also one of eight ingredients in "eight-flavor sauce." Over twenty other food preparations including fish preserves, dried meat, duck stew, sheep's trotter stew, sour soup, sheep intestines, Qiang-style cooking, and various fish dishes all use orange peel. Though each uses small amounts—"ginger and orange are used for fragrance, not in large quantities, as too much makes it bitter"—the wide variety of applications suggests substantial total consumption. The text mentions substitutes when orange peel is unavailable: "If no orange peel, wild orange seeds may be used," indicating both widespread use and perceived shortage. Clearly, northern Wei people were not unfamiliar with oranges, and their knowledge extended beyond the literature cited in Chapter Ten.

(5) Water Shield (*Brasenia schreberi*)

Water shield, also known as water mallow or duckweed, is a perennial aquatic plant with elliptical leaves floating on water, mucilage on stems and leaf undersides, and dark red flowers. Its tender leaves are used in soups, primarily distributed in the Yangtze River region and south. Southern consumption of water shield has ancient roots. Western Jin literati Lu Ji (son of Eastern Wu general Lu Kang), visiting Luoyang in the late 280s, was asked by Wang Ji: "What

in Wu can compare to this sheep cheese?" Lu Ji replied: "Thousand-li water shield soup, salt and fermented beans from Moxia." This shows Wu people's fondness for water shield. Long-term consumption created dependency. Due to geographic limitations, water shield was hard to obtain in the north, spawning many stories. Fellow Wu native Zhang Han, serving in Luoyang, resigned his post and returned home upon seeing autumn winds, longing for his hometown's water shield soup and perch slices. Southern Song scholar Fan Chengda's *Gazetteer of Wu Commandery* notes: "Today people make perch soup with water shield, which has especially fine flavor." Even today, water shield soup remains a famous dish in Hangzhou, Zhejiang. Liang dynasty Crown Prince Zhaoming's *Thanksgiving for Imperial Bestowal of Large Cabbage* mentions water shield, showing that in Jia Sixie's era, water shield was still popular only in Wu (the Yangtze River region and south). Yet *Qi Min Yao Shu* not only includes "Planting Water Shield" attached to "Fish Farming" in Chapter Six, but also declares in Chapter Eight's "Soup Methods": "Among vegetables for soups, water shield is supreme," providing detailed usage and preparation methods. Water shield originates from the south, is consumed in the south, and its 典故 are southern, yet its utilization and preparation methods are most detailed in *Qi Min Yao Shu*.

(6) Lotus, Fox Nuts, and Water Chestnuts

Lotus, fox nuts (also called chicken-head or goose-bill), and water chestnuts share habitats and are associated with Jiangnan. The Han dynasty folk song "Jiangnan" describes lotus picking in Jiangnan. While these plants are distributed everywhere, they are most abundant in Jiangnan and rare in the north. For example, the *Leting County Gazetteer* in Hebei records: "Water chestnut is also called fox nut; fox nut is also called chicken-head. Old records mention them, but today the county has virtually none."

Wild lotus, water chestnuts, and fox nuts have long been foraged. The Hangjiahu Plain in Zhejiang is China's earliest and most concentrated area for water chestnuts, with discoveries at the 7,000-year-old Hemudu site and 6,000-year-old Majiabang site. Southern Song poet Bao Zhao's "Song of Picking Water Chestnuts" describes harvesting activities in the middle Yangtze region. Eastern Han official Xi Yu of Xiangyang built large ponds and fish pools following Fan Li's fish farming methods, planting lotus and fox nuts.

Compared to the south, the north had narrower water surfaces and fewer aquatic resources, which were also less utilized. Yet *Qi Min Yao Shu* Chapter Six's "Fish Farming" appendix includes methods for planting water shield, lotus root, lotus, fox nuts, and water chestnuts. Chapter Eight's "Soup Methods" details water shield soup preparation. Notably, the fish farming and lotus/fox nut planting methods recorded in *Qi Min Yao Shu* match those used by Xi Yu, derived from *Fan Li's Fish Farming Methods* but first implemented by Xi Yu.

(7) Wild Rice (*Zizania latifolia*)

Qi Min Yao Shu mentions using wild rice leaves for processing dried jujubes and fish preserves, and wrapping rice dumplings with wild rice leaves. Wild rice is a typical southern perennial aquatic plant sharing habitat with rice. Its seeds, called "wild rice grain" or "carved fox grain," were once an important food listed among the "nine grains." However, wild rice grain was primarily gathered, so agricultural texts including *Qi Min Yao Shu* only record "wild rice grain meals" without detailed cultivation methods.

When infected with smut fungus, wild rice stems swell to form water bamboo shoots, an important aquatic vegetable. Jin dynasty poet Zhang Han's longing for water shield and perch also included wild rice shoots, showing they were rare in the north at the time. Wild rice is widely distributed but most common in the Yangtze River region. After the Tang and Song dynasties, the development of artificial floating fields in the Yangtze region originated from utilizing wild rice mats, hence floating fields were also called "mat fields." But the key point is that this distinctly Jiangnan species attracted northern attention and was recorded in *Qi Min Yao Shu*.

(8) Chinese Cabbage (*Brassica rapa*)

Chinese cabbage, known in later times as *baicai*, first appears in medical texts like *Treatise on Cold Damage* and *Miscellaneous Records of Famous Physicians* for its medicinal properties, without mention of origin. Jin dynasty Zhang Bo's *Records of Wu* mentions Lu Xun urging people to plant beans and cabbage. *Book of Southern Qi* records that Prince Zhaoye of Wuling served cabbage and abalone to colleagues. The same text records Zhou Yong telling Crown Prince Wen that early spring leeks and late autumn cabbage were the two tastiest vegetables. Contemporary pharmacologist Tao Hongjing noted: "Among vegetables, cabbage is most commonly eaten. Its nature is mild and beneficial, with no adverse effects, so people eat it frequently. It seems slightly cooling yet withstands frost and snow. Its seeds can be pressed for oil to promote hair growth and applied to swords to prevent rusting. There are several varieties, but all are of the same type." Liang Emperor Jianwen also wrote *Thanksgiving for Imperial Bestowal of Large Cabbage*.

Nearly all early literature on cabbage shows its main production area was Wu in Jiangnan, especially around modern Nanjing. The name "cabbage" (*song*) relates to the south, as it could overwinter in the open, frost-resistant like a pine (*song*), hence the name. *Qi Min Yao Shu* cites *Erya*: "Xu, fengcong." Commentary: "Jiangdong calls it turnip or cabbage. Cabbage and xu sound similar; xu is turnip." *Zilin* states: "Feng is turnip seedlings, as called in Qi and Lu." This shows cabbage was mainly distributed in Jiangdong. *Tang Herbal* notes: "Cabbage does not grow in the north. If seeds are taken north, in the first year and a half they become turnips; after two years, cabbage seeds are completely lost. If turnip seeds are planted in the south, they also completely

change after two years. This is an example of how land suitability works… There are three types of cabbage: ox-belly cabbage with largest, thickest, sweetest leaves; purple cabbage with thin, fine leaves and slightly bitter taste; and white cabbage resembling vines."

Yet cabbage appears in *Qi Min Yao Shu*, though less important than mallow or turnip, with cultivation methods only appended to turnip sections. However, cabbage is mentioned frequently in food processing and storage sections, such as substituting for water shield in fish soup , using it in melon and gourd dishes , and as a primary vegetable in "pickling and storing fresh vegetables."

(9) Ginger

Qi Min Yao Shu Chapter Three's "Planting Ginger" explicitly states: "Chinese soil is unsuitable for ginger; it can barely survive but won't propagate. Those who plant it do so only for medicinal use in small quantities." Ginger prefers warmth and moisture, disliking cold. The Yangtze River basin, Pearl River basin, and warm, humid regions of Yunnan and Guizhou are main ginger production areas with high yields and superior varieties. The text cites *Zilin*: "Ginger is a vegetable that counteracts dampness. Zi is fresh ginger. Pan Ni says: Ginger of southern barbarians." This reflects ginger's regional distribution. Ginger cultivation in the north developed mainly after the Song and Ming dynasties. Xu Guangqi in *Complete Treatise on Agriculture* noted: "Historically, many fruits and vegetables came from foreign lands. Today, ginger and water chestnuts transplanted north have flourished, though once considered unsuitable for the region." However, in Jia Sixie's era, ginger was already cultivated in the north and widely used in cooking, far beyond "small medicinal use." Chapters Eight and Nine use ginger in nearly all meat and aquatic product processing, including dried meat, crab preservation, soups, steaming, and roasting. For "eight-flavor sauce," ginger is indispensable: "One part garlic, two parts ginger, three parts orange, four parts white plum, five parts cooked chestnut, six parts rice, seven parts salt, eight parts vinegar." Even wine-making required ginger. The text also mentions two methods for making "honey ginger."

(10) *Yuan* (*Alangium chinense*)

Yuan is a tree mainly produced in the south. Guo Pu's commentary on *Erya* states: "Yuan is a large tree with chestnut-like seeds, growing in the south, with thick, red bark for storing eggs and fruits." *Wenxuan*'s Zuo Si's *Rhapsody on Wu Capital* mentions yuan among large trees with thick, bitter bark that when dried red and boiled, preserves various fruits from spoiling and enhances flavor, found in Yuzhang. *Qi Min Yao Shu* Chapter Six's "Raising Geese and Ducks" mentions the "yuan method" for processing salted duck eggs, noting: "Many are made in Wu, up to ten hu, improving with long storage, even lasting through summer." This clearly shows yuan and the yuan method originated from the south. Interestingly, rural Jiangxi, known as the "head of Wu and tail of Chu," still calls salted eggs "yuanzi," likely rooted in this tradition.

(11) Yue Melon

Yue melon, vegetable melon, and sweet melon are believed to originate from the same species. Sweet melon spread from Africa via the Middle East to India, then to China via Vietnam, hence the name Yue melon. Historically, Yue covered the southeastern coastal region to Vietnam, and the name Yue melon indicates it remained limited to the south for a long time. Recent archaeological research suggests the lower Yangtze region may be one of the domestication origins of sweet melon. Li Shizhen's *Compendium of Materia Medica* states: "Yue melon is named after a place, commonly called vegetable melon, southerners call it vegetable melon." *Qi Min Yao Shu* not only includes "Planting Yue Melon and Hu Melon Method" and regional Yue melon planting in Chapter Two, but also incorporates Yue melon into processing and storage techniques in Chapter Nine, mentioning: "People in Yuzhang Commandery plant Yue melon late, so the flavor is different," and citing *Food Classic* on Le'an Magistrate Xu Su's melon storage method.

(12) Mountain Pomegranate (Rhododendron)

Qi Min Yao Shu Chapter Four's "Pomegranate" cites *Mount Lu Records*: "Incense Burner Peak has a large flat stone seating hundreds, with mountain pomegranates hanging. In the third month they bloom, colored like pomegranate but lighter, with red petals and purple calyxes, dazzlingly lovely." The author of *Mount Lu Records* was Zhou Jingshi of the Northern and Southern Dynasties, likely southern. Mountain pomegranate is rhododendron, also called mountain azalea, red azalea, etc., mainly distributed in Jiangsu, Anhui, Zhejiang, Jiangxi, Fujian, Taiwan, Hubei, Hunan, Guangdong, Guangxi, Sichuan, Guizhou, and Yunnan—a typical southern plant. Mount Lu is a famous rhododendron production area. Tang poet Bai Juyi, who served in Jiangzhou (modern Jiujiang, Jiangxi, where Mount Lu is located), wrote several poems about mountain pomegranate, one noting: "Mountain pomegranate, also called mountain azalea, also called rhododendron… In the third month of Jiujiang, rhododendrons come, one cry urges one branch to bloom." From Bai Juyi's poems, Tang people had already transplanted rhododendrons from mountainsides to courtyards, marking the beginning of artificial cultivation. Bai Juyi also transplanted mountain pomegranate from Mount Lu to Zhongzhou, where it survived, prompting him to write: "The flowers in Zhongzhou today are last year's trees on Mount Lu." Zhongzhou should have had natural rhododendron distribution, so why transplant from Mount Lu? Ming scholar Wang Shimao's *Ministry of Fujian Affairs* noted: "Under heaven, rhododendrons are most abundant in Yuzhang, Yugan, and Anren, with bright and light red colors unmatched in Fujian." Mount Lu lies within this range, and *Qi Min Yao Shu*'s citation shows these mountain pomegranates were already appreciated in the Northern and Southern Dynasties.

(13) Water Buffalo

Northern China had distributed swamp buffalo during the Shang and Zhou periods, but this species became extinct by the Spring and Autumn period. Modern Chinese domestic buffalo inhabit areas south of 36°N and east of 97°E. Though distributed as far north as Linyi in Shandong, Xinyang in Henan, Hanzhong in Shaanxi, and northern Sichuan, their main production areas are south of the Yangtze-Huai region, especially in Guangdong, Guangxi, Hunan, Hubei, Yunnan, and Guizhou. Historically concentrated in the middle and lower Yangtze region, they were called Wu buffalo. Taiwan's buffalo were brought by immigrants after Zheng Chenggong recovered Taiwan in the late Ming and early Qing.

Water buffalo have poorly developed sweat glands and must soak in ponds to dissipate summer heat or roll in mud to prevent insect bites, showing high dependence on aquatic environments—like rice. Since the advent of ox plowing, water buffalo have been indispensable for rice production, making their distribution closely tied to paddy fields. Westerners considered "the true dividing line between north and south China lies where rice culture prevails. Water buffalo are the main tool for rice production. If horses or mules cannot be used for plowing and only serve as transport, people won't raise them, so there are no horse-drawn carts in rice regions."

Yet this species, rare in the north, also appears in *Qi Min Yao Shu*. Chapter Nine's "Boiling Glue" mentions: "For boiling glue… sand cowhide, water buffalo hide, and pigskin are best; donkey, horse, camel, and mule hides are secondary." Water buffalo are generally thick and large with extremely thick skin, short coarse hair, and gray-black color—suitable for glue-making. Though only "water buffalo hide" is mentioned, which could be locally produced or imported from the south, the undeniable fact is that southern elements had entered *Qi Min Yao Shu*.

(14) Silkworms

Qi Min Yao Shu Chapter Five, "Planting Mulberry and Paper Mulberry, with Silkworm Raising Attached," cites Yu Yiqi's note: "Rinan silkworms mature eight times, with soft, thin cocoons. Mulberry picking is minimal." It also cites *Yongjia Records*: "Yongjia has eight generations of silkworms: yuanzhen silkworm (spins in third month), zhe silkworm (spins in early fourth month), yuan silkworm (spins in early fourth month), aizhen (spins in fifth month), ai silkworm (spins in late sixth month), hanzhen (spins in late seventh month), sichu silkworm (spins in early ninth month), and han silkworm (spins in tenth month). All double-maturing silkworms are called 'zhen' by predecessors. Those who raise zhen silkworms raise few…"

The eight-generation silkworm was developed in Wu during the Three Kingdoms period, maturing eight times yearly—hence "eight-generation silkworm." According to Yongjia Governor Xie Lingyun's *Yongjia Records*: "Yongjia (mod-

ern Yongjia County, Wenzhou, Zhejiang) has eight generations of silkworms: kangzhen spins in third month, zhe silkworm in fourth month, yuan silkworm in late fourth month, aizhen in fifth month, ai silkworm in late sixth month, hanzhen in late seventh month, sichu silkworm in early ninth month, and han silkworm in tenth month. All double-maturing silkworms are called 'zhen' by predecessors." Tang poet Li He wrote in his "Southern Garden" poems: "North of the palace fields at dawn, yellow mulberry drinks dew… Long-waisted strong women stealthily pick them to feed the Wu king's eight-generation silkworms." Jia Sixie's *Qi Min Yao Shu* also records the eight-generation silkworm.

II. Possible Explanations for "Unusual" Phenomena

The appearance of extensive non-typical northern specialty content in *Qi Min Yao Shu* is an extraordinary phenomenon likely resulting from two factors: possibilities provided by the northern natural environment, and deliberate transmission from south to north.

(1) Northern Natural Environment Possibilities

Products like rice, fish, water shield, lotus, fox nuts, water chestnuts, wild rice, and water buffalo in *Qi Min Yao Shu* all have high water dependence, while bamboo, orange, and cabbage are temperature-sensitive plants associated with warm, humid southern environments. Yet these appeared in the north during certain historical periods, providing evidence for climate change research. However, a gap exists between documentary records and actual existence. Did the northern natural environment during Jia Sixie's Northern Wei period provide possibilities for these products' northern existence?

Ancient North China once had numerous, extensive lakes comparable to the modern lower Yangtze region. During the medieval period (c. 3rd–9th centuries), North China still had excellent water environments, with major rivers maintaining considerable flow even in dry seasons, numerous lakes and marshes, and abundant mountain springs—providing environmental support for rice cultivation and fishery economies. Jia Sixie's contemporary, geographer Li Daoyuan's *Commentary on the Water Classic* provides firsthand material on the northern water environment. According to its records, the Yellow-Huai-Hai Plain had 190 lakes and marshes (including lakes, marshes, ponds, pools, etc.), with only a few south of the Huai River and the rest north of it . Some lakes were quite vast, like the Juye Marsh between Qi and Qing: "The marsh is vast, connecting Zhu and Si rivers southward and Qing and Qi northward." Many areas presented water town scenery, like the Puyang Marsh in modern Zhongmu County, Henan: "West bounded by the Great Wall, east reaching Guandu, north connected to canal water, about forty li east-west and twenty li north-south. Inside are sand ridges with twenty-four coves, connected by channels and pools… When water is high it flows north; when canals overflow it spreads south" ; near modern Tianjin, the famous Yongnu Marsh had "ninety-nine ponds with interconnected channels" ; in

modern Wangdu County, Hebei, "the Bo River flows east past Yangcheng, dispersing into marshes several li square, not only abundant in reeds and bamboo shoots but also rich in water chestnuts and lotus roots. Young boys and girls in single or stacked boats pick water chestnuts and lotus, singing long songs of spring, loving the green waters, tirelessly gathering, harmonizing in song, bringing comfort to traveling observers, called Yangcheng Marsh" . By the Tang dynasty, Yangcheng Marsh "surrounded thirty li, with cattails, reeds, water chestnuts, and fox nuts growing everywhere" , its water town scenery largely unchanged. Such environments indeed resembled Jiangnan. Therefore, rice planting, fish farming, and cultivation of water shield, lotus, fox nuts, and water chestnuts appearing in *Qi Min Yao Shu* were possible. Some southern agricultural organisms had biological characteristics facilitating northern expansion—cabbage is quite cold-resistant, suitable for northern seasonal planting; japonica rice is similar. Archaeological and documentary evidence shows rice settled in the north long before *Qi Min Yao Shu*, even in the Neolithic period, completing south-to-north transmission. Fish could survive wherever water existed and had long been an important northern economic resource. "Shandong has abundant fish and salt," and Yan and Zhao had "fish and salt wealth" . *Commentary on the Water Classic*'s description of Yangcheng Marsh shows some northern scenes were indistinguishable from the southern image.

However, if we treat "meal rice and soup fish" as a cultural whole rather than individual elements, rice and fish's status in northern daily life could not compare to the south. For northerners, water-town specialties like rice, fish, and water shield not only failed to fully enter life but faced huge identity barriers. From Jia Sixie's contemporary Yang Xuanzhi's writings, we see northerners not only didn't accept but actively rejected these, revealing vast north-south differences. Central Plains gentry's non-recognition of southern culture shows water-town specialties in *Qi Min Yao Shu* still had a long way to go to become part of northern life.

If northern Jia Sixie's era had natural environmental conditions for aquaculture and cultivation, yet culturally held prejudice and even discrimination against southerners living on aquatic products, then are the "meal rice and soup fish" contents in *Qi Min Yao Shu* northern or southern? Where did these so-called non-typical northern product contents come from, and how did they enter *Qi Min Yao Shu*?

(2) Southern Transmission Factors

1. Information Revealed by Place Names *Qi Min Yao Shu* contains place names revealing content origins. Previous scholars have used these to discuss the book's author and region. For example, Shandong place names appear most frequently, especially related to Qi Commandery . Others include Chaoqi (Qi County) in Henan; Maoling in Shaanxi; Huguan, Shangdang, Dai (Datong and vicinity), Bing (Taiyuan and vicinity), and Liao (Xiyang) in Shanxi; and

Jingxing and Yuyang (Miyun) in Hebei. These were likely places where Jia Sixie worked or visited, proving he was most likely from Shandong and that *Qi Min Yao Shu* covers the middle and lower Yellow River region.

We can similarly use place names to examine southern agricultural elements. Some names are general: "south," "southern barbarians," "Jiangnan." Others are specific: "Wu region," "Shu region," "Wu center," "Shu center," "Eastern Wu." Some are very specific: Yizhou, Zhuti (modern Zhaotong, Yunnan), Jianning (modern Qujing, Yunnan), Lujiang, Yangzhou, Wudu, Changsha, Yuzhang, etc. (see Table 1).

Table 1. Southern Place Names in *Qi Min Yao Shu*

Place Name	Content
South	"Southern regions have cicada-singing rice, maturing in seventh month." "Yuan is a large tree with chestnut-like seeds, growing in south…"
Yangtze River	"Yangtze River glutinous rice"
Jiangnan	"Today Jiangnan knows sericulture and weaving, all taught by Chong." "Water shield… Jiangnan people call it water shield or water mallow."
Yuzhang	"Yuzhang green rice." "People in Yuzhang Commandery plant Yue melon late, so flavor differs."
Mount Lu	*Shenxian Zhuan*: "Dong Feng lived on Mount Lu…" Zhou Jingshi's *Mount Lu Records*: "Incense Burner Peak has large flat stone…"
Le'an	*Food Classic*: "Le'an Magistrate Xu Su's melon storage method."
Jiuzhen	"Jiuzhen and Lujiang didn't know ox plowing, causing poverty." "Jiuzhen long-crowing chicken…"
Lujiang	*Guangzhi*: "Melons come from Liaodong, Lujiang, Dunhuang." "Jiuzhen and Lujiang didn't know ox plowing…"

Place Name	Content
Yangzhou	Zhang Mengyang's *Melon Rhapsody*: "Yangzhou in Hedong commonly eats it."
Eastern Wu	*Guozi*: "Eastern Wu has long-handled pots." "Wu people mostly use this for seasoning." "Wu center sends long-crowing chickens…"
Shu-Han	*Guangzhi*: "Shu-Han has abundant taro, people's resource." "Shu-Han has thousand orange trees at Jiangling." "White weak leeks one chi long come from Shu-Han." "Shu climate is warm, melons ripen in winter." "Shu people call plums *lan*." "Shu people's wine-making method." "Shu method for storing plums."
Yizhou	"Green taro rice, sixth month; leizi rice, baihan rice, seventh month. These three rices are large and long, grains half-cun, from Yizhou."
Wuling	Li Heng built a house on Fanzhou in Wuling Longyang, planting thousand orange trees."
Changsha	"Method for making Changsha rush fish preserve."
Southern Barbarians	Pan Ni says: "Ginger of southern barbarians." *Guangzhi*: "Judu bean, purple flower, can be made into flour, grows in Zhuti, Jianning."

As seen, the Wu region is the main source of southern agricultural elements in *Qi Min Yao Shu*, with Jiangnan, Yuzhang, Lujiang, and Yangzhou all within Wu's scope. Products from Wu include marsh garlic, long-handled pots, long-crowing chickens, Yue melon, etc.; techniques include pickling, preserve-making, yuanzi method, late Yue melon planting, and rice varieties. Next is the Shu region, including Yizhou, Zhuti, Jianning, Wudu, etc. *Qi Min Yao Shu* records products

named after Shu: Shu mustard, Shu pepper, Shu sorghum, etc.; techniques include Shu plum storage, Shu wine-making, Shu melon storage, etc.

2. Rice Cultivation Techniques' Southern Connections Rice originated in the south and was the south's main crop. However, rice had already settled in the north before *Qi Min Yao Shu*, completing south-to-north transmission. Yet north-south rice technique exchange never ceased.

After describing the complete rice cultivation process from site selection, land preparation, seed soaking, sowing, weeding, water management, and harvesting, *Qi Min Yao Shu* specifically notes: "Northern highlands originally had no paddy fields." Without paddy fields, how could the north develop rice cultivation? The text focuses on paddy field construction, then states "sow seeds as before," "irrigate and harvest as before." Thus *Qi Min Yao Shu* aimed to promote rice planting in the north using likely southern techniques.

Qing scholar Wu Bangqing, reading *Qi Min Yao Shu*'s rice section, noticed the first part described direct seeding without transplanting, while the "northern highlands" section mentioned "when seedlings reach seven or eight cun, pull and transplant them." He suspected southern rice planting didn't use transplanting, only the north did, wondering if ancient and modern methods differed. Wu correctly identified north-south technique differences, but his conclusion that the north used transplanting while the south didn't may be incorrect. "Pull and transplant" might be a weeding method, not necessarily transplanting, as later history shows transplanting became common in the south while the north still used direct seeding. Northerners considered rice seedling transplanting troublesome—one obstacle to southern technique promotion in the north. Clearly, *Qi Min Yao Shu*'s rice and cultivation techniques are atypical northern elements likely from the south.

Between Han and Tang, southern rice technique records were scarce, mostly "slash-and-burn and water weeding" in official histories. Interpreted as a weeding method: "Cut grass and sow seeds; when rice seedlings grow large and weeds small, flood with water, killing weeds without harming rice." *Qi Min Yao Shu* states: "When rice seedlings reach seven or eight cun, old grass regrows; cut with a sickle underwater, grass completely dies. As rice seedlings grow, they must be weeded again." This is similar—a weeding method under direct seeding, cutting weeds, drying, burning, then sowing, waiting for rice and weeds to regrow, cutting again and flooding, using different physiological responses to flooding to kill weeds.

Additionally, transplanting technology for convenient weeding and field management may have already appeared in the south. Eastern Han Cui Shi's *Four People's Monthly Ordinances* records "separating rice and indigo" in fifth month, interpreted by some as rice transplanting, but lacks further evidence. Eastern Jin poet Tao Yuanming's works mention southern rice techniques, most notably "leaning on a staff to weed and hill" in *Return*, which easily connects to a histor-

ical Jiangxi rice weeding method called “hilling” or “beating seedlings”—after transplanting and recovery, “leaning a staff in hand, using feet to push mud around roots while bending old field weeds to prevent regrowth.” This differs greatly from weeding under direct seeding, requiring row and plant spacing, indicating transplanting was used in the south. “Pull and transplant” resembles transplanting but may have been influenced by it without being identical.

During Wei-Jin and Northern-Southern Dynasties, northerners were not unfamiliar with southern rice cultivation, especially quality varieties. Emperor Wen of Cao Wei wrote: “Only Changsha in Jiangbiao has good rice; how can it compare to Xincheng japonica? When cooked upwind, the fragrance carries for five li.” *Commentary on the Water Classic* mentions rice cultivation in Jiangnan and Lingnan . *Qi Min Yao Shu*’s rice chapter cites *Guangzhi* on rice varieties: “The south has cicada-singing rice,” “has green taro rice, sixth month; leizi rice, baihan rice, seventh month. These three rices are large and long, grains half-cun, from Yizhou.” Whether these four varieties were planted in Northern Wei territory is unknown, but at least cicada-singing rice appeared in the north during Northern Zhou (557–581). Northern Zhou poet Yu Xin described northern rice cultivation: “In sixth month cicada-singing rice, thousand-gold dragon bone canal.” Dragon bone canal was a Han dynasty irrigation canal west of Luoyang. Cicada-singing rice may have entered the north even earlier.

Qi Min Yao Shu records 26 rice varieties from Northern Wei territory, most notably “Yuzhang green rice” and “Yangtze glutinous rice,” both with clear southern backgrounds. Yuzhang is modern Nanchang, Jiangxi. Related references include “Yuzhang Commandery people plant Yue melon late” and three mentions of Yu Yiqi, also from Yuzhang, making Yuzhang green rice’s appearance no coincidence. Yangtze glutinous rice clearly refers to a glutinous rice variety from the Yangtze region—today northerners still call glutinous rice “jiang rice.”

Qi Min Yao Shu records varieties like tiger-palm rice, purple-awn rice, red-awn rice, white rice, yellow-lu rice, horse-tooth glutinous rice, and tiger-skin glutinous rice, all also found in later southern rice literature. We cannot yet determine whether these spread south-to-north or north-to-south. Regardless, northern rice techniques were influenced by the south before the 10th century.

Qi Min Yao Shu’s “White Fermented Yeast, Method of Minister Huangfu’s Family” mentions “white fermented wine method” using southern glutinous rice. The method involves soaking raw material in boiling water overnight until “rice becomes extremely sour.” Soaking makes starch molecules expand through hydration for quick gelatinization during normal-pressure steaming, but here the purpose goes further: acidifying the rice and using the sour soaking water as important wine-making ingredients. This method is still retained in southern yellow wine production , showing *Qi Min Yao Shu* absorbed southern rice processing elements. *Qi Min Yao Shu* also cites *Food Classic* on “winter rice bright wine method” using “soaked refined rice” to make it “extremely sour.” More notably, it mentions “malaria-curing wine method.” Malaria is a mosquito-borne disease mainly distributed in the south after summer. The appearance

of "malaria-curing wine," made on the eighth day of fourth month, is another southern element in *Qi Min Yao Shu*.

3. Fish Distribution and Utilization We can also speculate on these aquatic products' origins from natural distribution and related socio-cultural history. Most fish and shellfish recorded in *Qi Min Yao Shu* are common in southern coastal areas, at least more important in southern life, with earliest consumption records from the south.

For example, mackerel—Fang Wen's *Fish Tasting* notes: "Southerners mostly make raw fish with it; what ancients called marquis's mackerel refers to this." *Qi Min Yao Shu* has a "fish preserves" section, and coincidentally southerners use mackerel for preserves called "mackerel preserve." Southern Qi gourmet Yu Zong once presented "sobering mackerel preserve" to Emperor Shizu . In Tang dynasty, northerners ate mackerel preserve with noodles from the south—Wang Wei's poem: "Mackerel preserve from river villages doesn't arrive, how can Qin people have noodles."

Snakehead is rarely distributed in northwest China but common in the south, hence also called southern snakehead or Taiwan snakehead. Anchovy schools migrate up rivers to spawn in spring and summer, forming fish runs, most abundant in the Yangtze River region, hence called "Yangtze knife fish." Though distributed in Shandong coastal waters, "production is minimal" .

Among croakers, large yellow croaker has three populations in the East China Sea north/middle, Fujian/eastern Guangdong, and western Guangdong, distributed from southern Yellow Sea to South China Sea, but mainly from East China Sea. Croaker's name relates to the historically southern Wu state in East China Sea. *Records of Wu* states: "In 505 BCE, when eastern barbarians invaded, King Helü of Wu went to sea to chase them… The king prayed, and east winds blew strongly, bringing golden-colored fish from the sea… The fish had white stones in their heads, hence called stone-head fish."

Though mullet is marine, it was commonly eaten in southern Wu-Yue coastal areas. Jin Ge Hong's *Biographies of Immortals* records: "When the Wu king discussed which fish made the best slices, Jie Xiang said: 'Mullet slices are best.' " Southern Song Wu Zimu's *Dreams of the Capital* also mentions mullet among products.

Bagrid catfish is mainly southern, with largefin catfish (called river mouse) distributed in the Yangtze River region, valued for tender meat.

Pufferfish's main obstacle is extreme toxicity. Wu people mastered detoxification and preparation, making it a banquet delicacy. Song Fan Chengda's *Gazetteer of Wu Commandery* records: "Wu people entertain guests with this fish in spring… The soup is made, and when guests arrive, it's reheated and served, said to be especially delicious."

Clams, oysters, and other shellfish, though coastal, have longer histories and

wider consumption in the south. Eating these was originally the most important part of southern "meal rice and soup fish." During the Northern-Southern Dynasties, some changed eating habits due to Buddhism. For example, after his mother's death, southern Wang Gu became vegetarian for life. When visiting Wei, they set up nets expecting southerners' fish preference, but Gu chanted Buddhist spells and caught nothing. Yet for southern mainstream society, rice-fish eating customs didn't change despite Buddhism. *Book of Southern Qi* records Zhou Yong's Buddhist vegetarianism and He Yin's similar faith, but He Yin loved meat, eating only white fish, eel preserves, sugar crabs, and possibly clams, oysters, and other shellfish. His student Zhong Wan argued eel preserves and sugar crabs were inedible but clams and oysters were acceptable because they showed no obvious life signs when processed, "no distress or flourishing, inferior to plants; no fragrance or stench, no different from tiles." Perhaps due to such psychology, even in Buddhist southern dynasties, clam and oyster consumption remained normal. Prince Yizhen of Luling, as governor of Southern Yuzhou, once privately ate roasted shellfish, criticized by colleague Liu Zhan.

Even after Wei-Jin and Northern-Southern Dynasties, shellfish production and consumption remained mainly southern. Northern Song authors like Ouyang Xiu, Wang Anshi, Mei Yaochen, Su Shi, Shen Kuo, and Han Wei all mentioned shellfish consumption and origins. Mei Yaochen's poem "Taizhou Scholar Wang Sends Shellfish" mentions shellfish from Hailing (Yangzhou). Shen Kuo noted: "Wen clams are what southerners eat as flower clams; giant clams are what are called shellfish." In Northern Song, Kaifeng could also eat shellfish, but transported from afar, as Han Wei wrote in "First Eating Shellfish in the Capital": "Capital nobles are tired of fine grains and meat, seeking exotic things from afar." Ouyang Xiu's 同名 poem describes how national unity brought southern products like shellfish to northern tables. In 1096, Fujian's Futang and Zhejiang's Mingzhou were ordered to annually tribute shellfish meat, showing southeastern coastal areas were main production regions.

Notably, combinations of southern elements in agricultural processing may reflect southern influence or originally be southern methods. Since ancient times, the south formed "meal rice and soup fish" dietary characteristics, with Jiangnan praised as a land of fish and rice. Fish and rice became main raw materials for food processing. *Qi Min Yao Shu*'s abundance of such content easily links it to Jiangnan. The "fish preserves" section mentions: "Cook non-glutinous rice as grains, combine with evodia, orange peel, and good wine in a basin, layer fish and grains in a jar to the top." The simultaneous appearance of fish and rice evokes *Records of the Grand Historian*'s descriptions of Chu-Yue "meal rice and soup fish," while "Changsha rush fish preserve method" clearly indicates origin from Changsha. Supplementary ingredients like evodia, orange peel, bamboo leaves, wild rice, and ginger are also characteristic of Jiangnan. The ginger, orange, white plum, and rice in "eight-flavor sauce" are also common in the south.

Examining origins of some food processing methods in *Qi Min Yao Shu* also

suggests southern origins. “Fish slices,” “roasted fish,” and “fish jelly” can all be traced to Spring and Autumn period Wu. They remained Jiangnan traditions, as Song Su Shi’s *Chou Chi Notes* records: “Jiangnan people love making plate-roaming rice, burying preserves, cured meat, and roasted meat in rice.”

Take “fish jelly method” as an example. *Qi Min Yao Shu* records that Emperor Wu of Han, chasing barbarians to the seaside, smelled fragrance without seeing its source. Investigation revealed fishermen making fish intestines in pits covered with earth, the fragrance rising upward. Taken and eaten, it became a delicacy, named after the barbarian chase—fish intestine sauce. Ming scholar Wang Shizhen doubted: “Though Emperor Wu crossed rivers to the sea, he never chased barbarians; the name is probably fabricated.” Another version relates to King Helü of Wu: “King Helü of Wu campaigned against barbarians at sea… They caught fish and found them delicious… The king used fish intestines and stomach, preserved in salt water, sent to barbarians, called ‘fish jelly.’ ”

Fish jelly is a southern flavor food made from fish viscera or swim bladders into fish gelatin. Southern Song Emperor Ming loved honey-preserved fish jelly, eating several sheng at a time . But this wasn’t affordable for ordinary people. Though Yangzhou governor Wang Jingwen also loved it, “being poor, it was hard to obtain,” while Emperor Ming ate so much it made him sick. *Qi Min Yao Shu*’s fish jelly method differs from Emperor Ming’s—one uses salt preservation, the other honey. This puzzles later people. Shen Kuo said: “Fish jelly is today’s cuttlefish intestines; how can it be eaten preserved in honey?” He found answers in Wu Commandery’s tributes of honey crabs and sugar crabs: “Generally southerners love salt, northerners love sweetness. Adding sugar and honey to fish and crabs suits northern customs.” Yet *Qi Min Yao Shu*’s salt preservation method belongs to southern tradition.

Conversely, some common Shandong coastal fish are absent from *Qi Min Yao Shu*, like hairtail and mackerel. Hairtail, called knife fish or silver knife, was once the top catch in the Yellow and Bohai Seas. Mackerel is a major economic fish in Shandong waters, commonly called mackerel fish. Han dynasty *Discourses on Salt and Iron* stated “Lai and Huang’s mackerel are inexhaustible,” and until early Republic, mackerel was produced in large quantities in Shandong. Yet *Qi Min Yao Shu* lacks hairtail records and only mentions mackerel when citing *Records of the Grand Historian* and fish sauce methods, disproportionate to their status in Shandong fisheries.

This suggests Jia Sixie’s fishery content was based on firsthand data, possibly from the south, compiled from existing sources like *Food Classic* and *Food Times* cited in the text. This may explain why *Qi Min Yao Shu* declares “Among vegetables for soups, water shield is supreme” when most northerners didn’t know water shield soup, and why its “crab storage method” may be the “sugar crab” from *Book of Southern Qi*, as the process involves boiling thin sugar, placing live crabs in cold sugar overnight, then transferring to salt and smartweed juice, adding ginger, and sealing—during which crabs struggle from life to death, the “restless agitation” that student Zhong Wan in *Book of Southern Qi* cited as

reason for some to refuse eating them.

III. Pathways for Southern Elements Entering the North

Xunzi · *Royal Regulations* states: "The North Sea has running dogs, yet China can raise them. The South Sea has feathers, teeth, hides, and cinnabar, yet China can use them. The East Sea has purple coarse cloth and fish-salt, yet China can wear and eat them. The West Sea has leather and patterned fur, yet China can use them." This describes nationwide commodity exchange. Political and military division couldn't mask economic and cultural exchange—true in Warring States period, true in Northern-Southern Dynasties. Through personnel exchange and textual transmission, economic-cultural exchange preceded political and military unification.

Especially northern rulers, after establishing themselves in Central Plains, turned their gaze south. Qin Shihuang and Han Wudi did so; so did minority rulers. Northern Wei Emperor Taiwu said: "Since my hair was dry, I've heard Henan is my family's land." Emperor Xiaowen said: "Close to Jiangyang, sooner or later it will be mine." Their curiosity about the south and ambition for southern territory became the original driving force for southern elements entering the north. Moreover, for Jia Sixie's possible birthplace Yidu and his post in Gaoyang Commandery, and places mentioned like Qi Commandery's Xi'an and Guangrao, there was a special circumstance: these Qingzhou areas were once under Southern Liu Song rule. In 432 CE, Emperor Wen of Liu Song divided Qingzhou, establishing nominal Ji Province governing Gaoyang Commandery. Later abolishing nominal Ji Province and merging into Qingzhou, Gaoyang belonged to Qingzhou. Until 469 CE when Northern Wei captured Dongyang City (Southern Liu Song's Qingzhou's northern city), these formerly Southern Liu Song Qingzhou areas became "Chinese" territory under Northern Wei. During Jia Sixie's time, though Qingzhou belonged to "China," having been ruled by "non-Chinese" Southern Dynasties, Jia Sixie in Qingzhou could have experienced more "non-Chinese" elements than other Northern Wei regions.

(1) Personnel Exchange

Qi Min Yao Shu mentions Western Yanzhou Governor Liu Renzhi's experiment with zone tillage in Luoyang, achieving 36 dan per mu . Since Jia Sixie associated with Liu Renzhi, he would have heard other Luoyang stories, and had other channels to learn about Luoyang. Luoyang was Northern Wei's capital, home to many southern immigrants. In Luoyang's Xiaoyi Lane east was Luoyang's small market, north of which was General of Chariots and Cavalry Zhang Jingren's residence. Zhang, from Kuaiji Shanyin, came north with Xiao Baoying in early Jingming era, was appointed Feathered Forest Commandant, and given a residence in Chengzheng Lane south of the city, popularly called "Wu People's Lane," where many southern immigrants lived. Near the Yi and Luo rivers, they could practice swimming. Over 3,000 households formed their own lane

market, selling mostly aquatic products, called “fish and turtle market.” Zhang found this shameful and moved to Xiaoyi Lane. The court, wanting to win over distant peoples, treated Wu people generously, giving high positions to those crossing the Yangtze. Zhang gained high office without military merit . By late Northern Wei, Luoyang’s “southern people” approached 10,000 .

Luoyang was just one destination for southern migrants. War-driven division brought many southerners north. Beyond political encouragement of southern elites, Northern Wei also captured populations in wars with Southern Dynasties. In 451 CE, Emperor Taiwu’s army captured tens of thousands from Jianghuai region, settling over 50,000 households near the capital . Meanwhile, southern turmoil also drove northward migration. Early in Emperor Xiaowen’s reign (467–499), his relative Tuoba Zhen, as governor of Southern Yuzhou, had over 3,000 Huainan households voluntarily join, settled east of the Ru River in Guanyi Lane , becoming Northern Wei subjects.

Northern immigrants brought southern lifestyles. In Luoyang, Wu people used the Yi and Luo rivers to develop fisheries, making Luoyang’s small market a fish and turtle market. Influenced by southerners, northerners acquired tastes for southern food. General Mao Xiuzhi, who could cook southern cuisine, won Emperor Taiwu’s favor, was ennobled, and often served in the imperial kitchen preparing southern dishes . This helps explain *Qi Min Yao Shu*’s extraordinary fishery content. If northern natural environments like the Yi and Luo rivers made fisheries possible, southern agricultural culture’s influence turned this possibility into *Qi Min Yao Shu*’s reality.

Besides southerners moving north affecting northern production and life, northerners traveling south and returning also brought southern habits back. Southern mathematician Zu Chongzhi (429–500) was originally from Fanyang Daoxian in Hebei (modern Laishui). Mao Xiuzhi, originally from Xingyang Yangwu in Henan (modern Yuanyang), served as a Liu Song general, perhaps learning southern cuisine this way before being captured by Northern Wei and winning imperial favor . Pei Shuye first served Southern Qi Emperor Wu (483–493), then entered Northern Wei. His subordinate Huangfu Guang also served Southern Qi Emperor Ming (494–500), then Northern Wei. Guang’s nephew Huangfu Yun was a Ministry of Personnel official, son-in-law of Prince Gaoyang, died in 532. Some suspect the “Huangfu Ministry of Personnel” in *Qi Min Yao Shu*’s “White Fermented Yeast” refers to Huangfu Yun . Wang Su, from Langya (modern Linyi, Shandong), served as Southern Qi Secretariat Director, developing southern rice-fish eating habits and tea drinking. After defecting to Wei, he initially couldn’t adapt to northern food, refusing mutton and dairy. Only after several years did he gradually adapt and consume more. At the time, southern and northern foods differed greatly: the south represented by fish soup and tea, the north by mutton and dairy. Asked “How does mutton compare to fish soup? How does tea compare to dairy?” Wang Su replied: “Mutton is the best land product; fish is the aquatic chief. Different preferences, each prized. In flavor, there is superiority. Mutton is like Qi and Lu great states; fish is like Zhu and

Ju small states. Only tea doesn't compare, being dairy's slave." Clearly, southern eating habits had reached the north through northerners' experiences like Wang Su and Mao Xiuzhi.

During Northern Wei, Luoyang housed immigrants from all directions, influenced by imported cultures, especially southern culture. Southern immigrants in Luoyang, like Jin dynasty Zhang Han's longing for water shield and perch, promoted southern culture's popularity in Luoyang. South of the Luo River was a special fish market "called Sitong Market, popularly called Yongqiao Market. Yi and Luo fish are mostly sold here; gentry and commoners wanting sliced fish all come here. The fish flavor is excellent, and the capital saying goes: 'Luo carp and Yi bream are more precious than cattle and sheep'."

(2) Textual Transmission

No evidence shows Jia Sixie visited the south. *Qi Min Yao Shu*'s southern agricultural data mainly came from literature. Jia Sixie stated in his preface that materials came from "collecting classics and traditions, extending to songs and ballads, inquiring of elders, and verifying through practice." Southern agricultural content most likely came from "classics and traditions," such as *Yue Jue Shu*, *Fan Li's Fish Farming Classic*, *Guangzhi*, *Jingzhou Land Records*, *Yongjia Records*, *Guangzhou Records*, *Customs Records*, *Food Classic*, *Food Times*, etc. Some were written by southerners; others recorded southern affairs. They positively influenced northern understanding of the south and continuously integrated into northern culture.

Jia Sixie's preface mentions Li Heng's orange planting story, likely from historical records. Li Heng, a Wu state official during Three Kingdoms, served as Danyang Governor. Wuling Commandery's Longyang County (modern Hanshou, Hunan) lies where Yuan River enters Dongting Lake. *Records of Three Kingdoms · Wu · Sun Xiu*, annotated by Pei Songzhi citing *Xiangyang Records*, tells how Li Heng secretly sent ten clients to build a house and plant thousand orange trees on Fanzhou in Wuling Longyang. Before dying, he told his son: "Your mother disliked my managing the family, hence our poverty. But I have a thousand wooden slaves in my hometown who will provide for you without demanding food or clothing, giving a bolt of silk annually, which should suffice." Twenty days after Li Heng's death, his son told his mother, who said: "These must be orange trees. Our family lost ten clients for seven or eight years; they must have been sent by your father to build the house. Your father always quoted Grand Historian Sima Qian: 'A thousand orange trees at Jiangling can enfeoff you as a lord'." … By Wu's end, Li Heng's oranges matured, yielding thousands of silk bolts annually, making the family wealthy. In Jin's Xiankang era, the withered trees still remained. *Commentary on the Water Classic* also records this. Li Heng's orange planting was inspired by Sima Qian. From Sima Qian to Li Heng to Jia Sixie spans nearly 600 years, with orange cultivation knowledge transmitted through texts and practice across generations. From *Records of the Grand Historian* to *Xiangyang Records*, from *Records of Three*

Kingdoms annotation to *Commentary on the Water Classic* to *Qi Min Yao Shu*, this forms a complete textual knowledge transmission chain—southern knowledge in this case.

Qi Min Yue Shu Chapter Three's "Miscellaneous Discussions" cites *Yue Jue Shu*'s "Pillow Middle Chapter." Coincidentally, *Commentary on the Water Classic* also cites *Yue Jue Shu* . *Yue Jue Shu* is an important early Wu-Yue history text, generally attributed to Han dynasty Kuaiji natives Yuan Kang and Wu Ping. Its appearance in Northern Wei books proves it spread from Eastern Jin and Southern Dynasties to Northern Dynasties, providing evidence for its circulation during Northern-Southern Dynasties.

Qi Min Yao Shu Chapters Five and Ten cite Yu Yiqi's notes. Yu Yiqi was a Jin dynasty native of Yuzhang (modern Nanchang, Jiangxi). According to *Commentary on the Water Classic*, "Yu Yiqi of Yuzhang, with upright temperament, unsuited to vulgar customs, with nowhere to accommodate himself, went far south," becoming knowledgeable about Lingnan products while maintaining correspondence with northern scholars like Han Kangbo of Yingchuan Changshe (modern Changge, Henan), who served as Yuzhang Governor, sharing his Lingnan knowledge with northerners. Thus we see both *Qi Min Yao Shu* and Li Daoyuan's *Commentary on the Water Classic* citing Yu Yiqi's correspondence on Lingnan products. Southern agricultural knowledge reached the north through such channels and entered northern writings.

Qi Min Yao Shu Chapter Six's "Fish Farming" content comes from *Fan Li's Fish Farming Classic*, also called *Fan Li's Fish Farming Method*, the earliest extant specialized fish farming treatise, generally considered a Han dynasty work . Fan Li (Tao Zhugong) wasn't the true author, but his appearance wasn't groundless, reflecting ancient Chinese fish farming knowledge creation and transmission. During Spring and Autumn period, Wu and Yue in lower Yangtze region had abundant water bodies and fishery resources. After defeat, King Goujian of Yue "fled to Kuaiji Mountain, defending the dark sea, seeing only fish and turtles" . Pond fish farming may have come from Fan Li and others' strategies. Historical records show Yue's defeat at Kuaiji, "using Wen Zhong and Fan Li's strategies to survive," eventually conquering Wu. *Records of the Grand Historian · Biographies of Merchants* states: "After Fan Li avenged Kuaiji's shame… he rode a small boat floating rivers and lakes, changing his name… Going to Tao, he became Zhu Gong." *Fish Farming Classic*, even if not personally written by Fan Li, may have been compiled by later generations based on his experiences. By early Eastern Han, Xiangyang Marquis Xi Yu followed the book's methods to build ponds and raise fish, planting lotus and fox nuts. From *Fish Farming Classic*'s attribution to its early circulation, we can trace fish farming knowledge transmission: from southern Wu-Yue origins, summarized and attributed to Fan Li, eventually entering *Qi Min Yao Shu* as *Tao Zhugong's Fish Farming Classic*.

Qi Min Yao Shu's food storage and processing sections extensively cite *Food Classic* on crop planting, food processing, and storage, including methods for

storing ginger, planting famous fruits, making dried jujubes, Shu plum storage, storing dried chestnuts, persimmons, papayas, bamboo shoots, white fermented wine, winter rice bright wine, wheat sauce, soybean thousand-year bitter wine, fermented beans, orange-garlic sauce, mustard sauce, rush preserve, taro sour soup, water shield soup, steamed bear, fish preserve, white pickle, jumping-ball roasting, dog meat, yeast, millet, rice meals, pickled cabbage, melon storage, Yue melon storage, plum melon storage, Le'an Magistrate Xu Su's melon storage, fern storage, malt sugar, wild rice storage, ginger storage, bayberry storage, etc. It also cites *Food Times* for bear steaming, chicken methods, rice cakes, etc. *Food Classic* and *Food Times* cited in *Qi Min Yao Shu* use many Wu-Yue dialect terms, with dishes mainly southern foods and flavors, written by Southern Dynasties people reflecting southern food processing techniques . Some products and techniques have clear regional characteristics, like "Shu plum storage method" obviously from Sichuan; "bayberry storage method"—bayberries mainly distributed between 20°–31°N in the Yangtze region and south, similar to citrus, loquat, tea, and bamboo distribution . Thus even if *Food Classic* wasn't by a southerner, at least some content was summarized by Southern Dynasties people and entered Northern Dynasties via texts, then collected in Northern Wei works.

Lüshi Chunqiu's "Seizing the Season" states: "Crops are made by humans, grown by earth, nurtured by heaven." Agricultural production is influenced by multiple human and natural factors. Products are largely natural outcomes. Different regional endowments directly affect production and life, creating distinctive production and lifestyle patterns. Since Qin-Han, "slash-and-burn and water weeding" and "meal rice and soup fish" became southern agricultural synonyms, while the north focused on dryland millet farming with relatively developed animal husbandry. These differences had natural and technological causes. Some products may have been distributed north-south without distinction, but technological differences gave them different economic values and cultural meanings. That is, individual factors may have had small north-south differences, but overall there were great differences—an important consideration when examining agricultural cultural exchange and technological transmission.

Previous *Qi Min Yao Shu* research has noted northern minority cultures' influence on Central Plains Han culture, especially dietary culture. Li Genpan deeply analyzed minorities' influence on crop breeding, animal husbandry culture, and dietary culture from *Qi Min Yao Shu*, elaborating the "multicultural convergence" system of traditional Chinese agriculture and economy . Ethnological approaches to agricultural history's origins and characteristics have merit, but for agriculture, regional factors obviously outweigh ethnic factors. Ethnic distribution also relates to region. Though agricultural content including various products (storage, processing, cooking) was often shared north-south and cannot be simply assigned to "southern" or "northern" factors, since ancient times Chinese northern and southern agriculture had obvious regional characteristics that didn't disappear over time. Meanwhile, precisely because of some north-south agricultural commonalities, their agriculture didn't diverge further,

and the Huai River didn't become an insurmountable barrier. Frequent north-south agricultural cultural exchange diluted characteristics, presenting a state of mutual inclusion.

While affirming *Qi Min Yao Shu* as a northern agricultural book, we must also affirm that not all its agricultural content originated in the north; some emerged through contact and exchange with surrounding regions, or were originally imported. Miao Qiyu, in annotating *Qi Min Yao Shu*, discovered extensive copying of southern materials, especially southern product data and food processing/cooking techniques (*Food Classic*, *Food Times*, etc.).

Ancient people early connected regional factors with agriculture, producing *Yu Gong* and *Zhou Li · Officials of Earth*. Regarding regional factors, north-south factors (latitude) outweighed east-west (longitude). The classic expression: "Oranges grown south of the Huai River are oranges; north of the Huai River they become trifoliate oranges." Yuan dynasty agronomist Wang Zhen also proposed north-south division using the Yangtze-Huai boundary from landforms, crops, soil, and climate . Though *Qi Min Yao Shu* lacks later explicit north-south concepts, only distinguishing "China" (Northern Wei territory) from "non-China," regional north-south influence appears within, such as Chapter Two's rice section noting "northern highlands originally had no paddy fields," emphasizing northern rice cultivation's special environmental conditions; Chapter Seven's "divine yeast and wine" noting "Henan is warm, make in second month; Hebei is cold, make in third month," showing temperature differences from regional variation.

Qi Min Yao Shu contains many southern agricultural elements. Chapter Ten's "grains, fruits, vegetables not native to China" are mostly southern products, while Chapters One through Nine also contain "non-Chinese" elements, especially regarding food processing. Comparing Chapter Ten with the first nine chapters reveals so-called "non-Chinese products" had already entered "China," become familiar, planted, and "localized." Some typical southern "non-Chinese products" had already entered "China" and influenced northern production and life. If "fish" represents southern agri-fishery culture and "sheep" represents northern agri-pastoral culture, then their combination "fresh" (*xian*) represents the farming culture in *Qi Min Yao Shu*.

Historical learning tells us northern China was the civilization center, and that war-caused northern decline drove northerners south, bringing advanced civilization and technology that spurred southern agricultural development—historically accurate. This study shows that while northern civilization influenced the south, the north was simultaneously influenced by southern civilization. *Qi Min Yao Shu* is an agricultural book centered on the middle and lower Yellow River region but also containing southern agricultural elements. In this sense, *Qi Min Yao Shu* is also a book recording both northern and southern agriculture, though not as prominently as later *Wang Zhen's Agricultural Treatise*.

Recent agricultural archaeology shows southern Chinese agriculture has as long a history as northern agriculture, but documentation scarcity leaves our understanding of pre-Tang southern agriculture mostly at *Records of the Grand Historian*'s "meal rice and soup fish, slash-and-burn and water weeding" level, without real understanding of its content. *Qi Min Yao Shu* is also important material for studying pre-Tang southern agricultural history, helping us reconstruct the real history from Warring States through Qin-Han to pre-Tang "meal rice and soup fish, slash-and-burn and water weeding."

Thus, *Qi Min Yao Shu* is northern, southern, and even national.

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Note: Figure translations are in progress. See original paper for figures.