

INTEGRATING WILD TUBER CROPS INTO RAINFED FARMING SYSTEMS

A Case Study of Tribal Farmers in Alluri Sitharama Raju (ASR) district, Andhra Pradesh

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About the location

Alluri Sitharama Raju District falls within a fragile ecosystem, characterized by elevations reaching up to 1,000 meters above mean sea level and an average annual rainfall of about 1,200 mm. With a tribal population exceeding 90 percent, the district is recognized as one of the predominantly tribal districts of Andhra Pradesh. Agriculture in the region is largely rainfed, with farmers cultivating crops such as millets, turmeric, and paddy in the plains, while upland areas support plantation and horticultural crops including coffee, black pepper, and cashew. In addition, tuber crops such as elephant foot yam (Kanda), cassava (Saggu Dumpa), and taro (Chamagaddalu) are commonly grown in select locations. More recently, farmers have also introduced potato (Bangala Dumpa) and sweet potato (Erra Dumpalu) as part of crop diversification efforts.



Summary

An innovative initiative by tribal farmers in Alluri Sitharama Raju (ASR) District, Andhra Pradesh, has created new income opportunities by introducing nutritious wild foods to urban markets. A traditional wild tuber known as Nagali Dumpa (*Dioscorea alata*), commonly consumed by tribal communities during November and December, has gained wider attention through value addition and recipe development by local farmers.

WASSAN has been working with tribal communities for over a decade to promote agroecological farming systems, while also documenting traditional food habits, particularly the use of wild greens, roots, and tubers. A wide variety of wild greens are harvested during the June–August period, while tubers are commonly harvested in November and December. These wild foods are deeply embedded in tribal traditions and cultural practices; however, the associated traditional knowledge – especially local recipes and preparation methods – has remained largely undocumented and is gradually diminishing. As part of these efforts, Ms. Gollori Doimurthy, a young woman from Karakavalasa village who underwent Poshanavanitha training organized by WASSAN, documented several traditional recipes shared by elderly women, with a special focus on dishes prepared using wild greens.

Elder women have begun selling boiled tubers in weekly markets and by setting up small outlets during rituals and festivals where there is large public gathering. Many elderly people and health-conscious consumers are increasingly preferring to buy these tubers due to their nutritional value. Interactions with the tuber vendors indicate that there is a strong and growing demand for these tubers in the local market.



Revival of Forgotten Foods Initiatives in the ASR district

On 21 August 2024, a Festival of Wild Greens was organized at Karakavalasa village under Sovva Gram Panchayat. The event was attended by around 60 women, who showcased a diverse range of cultivated and uncultivated greens. Nearly 30 school-going children visited the stalls to learn about the identification, diversity, and culinary uses of various wild greens. Women participants engaged in group discussions to share and document traditional recipes and preparation practices.

Among the wild greens displayed, Konkodi Kura (*Diplazium esculentum*), Koliyari Sagu (*Bauhinia variegata*), Tender leaves of (*Cucurbita maxima*), Bamboo shoots, and wild mushrooms were identified as highly valued seasonal foods, commonly available during the May–June period. Women from the Kotiya tribal community emphasized that these greens play a crucial role in meeting household nutritional needs during the monsoon season, when agricultural produce is limited. This is followed by the availability of Sarakura (*Colocasia esculenta*) and Mudrangi (*Alternanthera sessilis*) during the month of July. An interesting aspect highlighted during the discussions was the traditional consumption of *Colocasia* petioles (leaf stalks) and leaves in combination with dry fish, as well as the preparation of tender pumpkin leaves as a nutritious and flavourful dish, often cooked with dry fish or beans.

Building on the momentum generated through this event, a Tuber Festival was subsequently organized on 30 January 2025. WASSAN and Sanjeevani, in collaboration with the Central Tuber Crops Research Institute (CTCRI), organized a Tuber festival at Killoguda village of Araku Hills. The festival brought together more than 150 tribal farmers from Andhra Pradesh, Telangana, and Odisha, along with representatives from 15 Civil Society Organizations (CSOs) and Farmer Producer Organizations (FPOs). Farmers showcased a rich diversity of indigenous roots and tubers, exchanged planting material, and highlighted the significance of these crops in ensuring food security, nutritional diversity, and ecological sustainability. The festival underscored the nutritional and ecological value of traditional roots and tubers and created a platform for interaction among farmers, researchers, CSOs, FPOs, and culinary practitioners. Key discussions focused on nutrition profiling of tubers, establishment of a community-managed tuber bank, exploring Geographical Indication (GI) tagging for select tubers, and engaging youth in the conservation of traditional agricultural knowledge.

One of the major outcomes of the festival was a collective resolution to systematically document and catalogue indigenous roots and tubers. Several species, such as Nagalidumpa (*Dioscorea alata*), Pindi Dumpa (*Dioscorea oppositifolia*), Vymudumpa (*Dioscorea pentaphylla*), and Cheda Dumpa (*Dioscorea bulbifera*), are seasonally collected from nearby forests for local consumption.



Tuber as a snack food

Field trials in collaboration with CTCRI

As a follow-up to the festival, CTCRI and WASSAN jointly prepared an action plan to undertake field demonstrations with tribal farmers cultivating sweet potato and cassava. Selected farmers were oriented on tuber crop demonstration practices.

Gunta Ramarao of Killoguda and Korra Laicon came forward to host the demonstrations. CTCRI supplied indigenous tuber varieties such as Kullaparachal and Marayour, while Sri Dhara (*Coleus potato*) was used as the check variety. All the crops are currently in the vegetative stage, and Kullaparachal is performing particularly well under the agro-climatic conditions of the Araku Hill region.

Forest to Farm

Tangula Ramurthy, a tribal farmer from Karakavalasa village, was inspired to cultivate wild tubers on his 20 cents of rainfed farmland after participating in the Tuber Festival. In July 2025, he established *Nagalidumpa* as a main crop under a row-planting system, intercropped with maize and beans on the same plot, earning a total income of ₹0.41 lakh. Similarly, Vanthala Ramachandar from the same village cultivated *Nagalidumpa* on 40 cents under a poly cropping system along with maize, bitter gourd, and amaranth, and earned a total income of ₹1.20 lakh. Mr. Ramachandar noted that earlier he cultivated the tuber only on field bunds and sold the produce in local weekly markets (sandies) during November. However, the consistent market demand for the tubers, along with the confidence gained through exposure at the Tuber Festival, encouraged him to shift from marginal cultivation to systematic, field-level production.

These on-farm demonstrations motivated nearly 50 farmers from Kotragondi, Panasalavalasa, Goppulavalasa, and Karakavalasa villages of Sovva Gram Panchayat to take up *Nagalidumpa* (*Dioscorea alata*) cultivation. Collectively, the farmers expanded the crop to nearly 30 acres, with individual holdings ranging from 15 to 20 cents.

Especially PVTG families in this region have taken up diverse tuber cultivation in their farm bunds for their consumption and marketing. Because these wild tubers are drought and pest resilient.

CONCLUSION

Tribal farmers are well adapted to cultivating integrated tuber-based cropping systems in their rainfed lands. However, recipes prepared from Nagalidumpa are yet to be standardized, and their nutritional profiling and scientific evaluation need to be undertaken by CTCRI. Tuber-based cropping systems show strong potential in rainfed regions and can be promoted as part of climate-smart agriculture practices to enhance crop diversity and resilience.



Dioscorea bulbifera