Tailoring Andhra Pradesh Community Natural Farming (APCNF) for Wider Adoption: Addressing Challenges with Evidence Based Policy

ELEVEN ACTIONABLE STEPS FOR STRENGTHENING APCNF

POLICY BRIEF

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Executive summary

The Andhra Pradesh Community Natural Farming (APCNF) program shows promise in promoting sustainable agriculture, but uneven adoption across districts requires tailored interventions. While some districts like Ananthapuramu demonstrate progress with some methods, they struggle with input access. Others, like West Godavari, remain reliant on chemical-based practices. Socio-economic factors like limited land resources, knowledge gaps, and insecure land tenure further hinder progress, particularly for marginalized groups.

To address these challenges, district-specific strategies are crucial. Ananthapuramu requires local input resource centers and wider training on input preparation and application. Alluri Sitharama Raju (ASR) needs workshops promoting core APCNF practices and farmer-to-farmer knowledge sharing. West Godavari will benefit from research trials and technical support for complete system adoption. Additionally, inclusive capacity building, targeted policies for female farmers, cost-benefit analysis with financial support, and dedicated market channels are crucial for wider adoption. Equipping farmers with drought mitigation strategies can further enhance climate resilience. By implementing evidence-based policies, APCNF can be strengthened, empowering farmers and ensuring a more sustainable agricultural future for Andhra Pradesh.

Building resilience in Andhra Pradesh through Community Natural Farming

Andhra Pradesh's agricultural landscapes face significant challenges: low soil organic carbon, water stress, diminished plant diversity, and declining above-ground biomass. These environmental degradations, further exacerbated by climate change, negatively impact ecosystem productivity and the well-being of dependent communities.

Recognizing the need for a transformative shift, the Government of Andhra Pradesh introduced the Andhra Pradesh Community Managed Natural Farming (APCNF) program. This farmer-led initiative promotes a paradigm shift in agricultural management, emphasizing harmony with nature through agro ecological methods. The ambitious goal is to transition all 6 million farmers in the state to natural farming practices over 8 million hectares by 2031.[1] This large-scale shift aims to reduce cultivation costs, improve soil health and crop yield, and enhance agricultural climate resilience.

With over 600,000 practitioners statewide, APCNF has already demonstrated tangible benefits like reduced production costs, increased yields, and improved soil quality.[2] However, previous evidence often relied on smaller-scale studies with anecdotal data, limiting a comprehensive understanding of success factors.[3]

1. Transforming Food Systems, Securing our common future, https://apcnf.in/, 30 April 2024
2. Victor Kibisu, Planned Comparison on APCNF practices used in Andhra Pradesh, India.
3. Ibid.

To address this gap, a planned comparison approach was adopted to systematically measure, track, and assess the impact and performance of APCNF practices across diverse farming contexts within the state. While progress has been made, the study revealed an urgent need for further policy action to strengthen APCNF and build resilience in different districts within Andhra Pradesh.

This policy brief aims to address the crucial evidence from the planned comparison study and propose actionable, context-specific steps for a farmer-centered, evidence-based policy to strengthen APCNF.

Tailored interventions for APCNF practice and inputs adoption across districts

Actionable steps

Ananthapuramu

- Establish local **farmer-led resource centers** to provide readily available raw materials for natural farming inputs in Ananthapuramu.
- Conduct training programs focusing on the **preparation and benefits** of a wider range of natural inputs.

Alluri Sitharama Raju (ASR)

- Conduct workshops and demonstrations **showcasing the benefits** of implementing APCNF practices in comparison to the traditional no input agriculture.
- Facilitate farmer-to-farmer exchanges to **share knowledge** and best practices in established APCNF methods.

West Godavari

- Conduct farmer-centred research demonstrating the effectiveness of APCNF practices under **variable climatic conditions** in West Godavari.
- Offer comprehensive **technical support**, guided by RySS staff in evaluation and implementation strategy, to incentivize the adoption of a complete APCNF system.

Varied landscapes, varied needs: A look at APCNF implementation

Across the three districts, the adoption of APCNF varies considerably. Ananthapuramu demonstrates high adoption of practices like border cropping, crop rotation and double sowing method. Usage of inputs like neem extract, compost manure, bio-fertilizers, bio-cultures and mulching remains low, with widespread adoption of APCNF inputs like Jeevamrutham, Ghanajeevamrutham, and Kashayams. Here the hurdles lies in the limited availability of raw materials/inputs, need for technical knowledge and handholding. Input availability assessment can be helpful to assess and address the gaps with possible solutions.

ASR presents a different picture. Farmers here have multiple plots and plant multiple crops in parallel and thus rely on the traditional low to no input agriculture. APCNF practices adoption rate is low lowest with farmyard manure as the most commonly used input. Farmers here do not differentiate between the traditional no input natural farming they practice and APCNF.

West Godavari stands out for its high reliance on chemical inputs, with the highest number of plots using agrochemicals along with APCNF practices. Farmers here rely heavily on the support of field cadres for inputs like JVM, GGM and Kashayams hindering their self sufficiency in APCNF adoption. While practices like seed treatment with Beejamrutham and pre monsoon dry sowing (PMDS) are highly adopted, adoption rates are low for mulching, intercropping, and crop rotation. Additionally, only a small percentage of farmers use compost manure. However, West Godavari shines inits use of neem extract, boasting the highest adoption rate of this eco-friendly pest control method among all three districts.

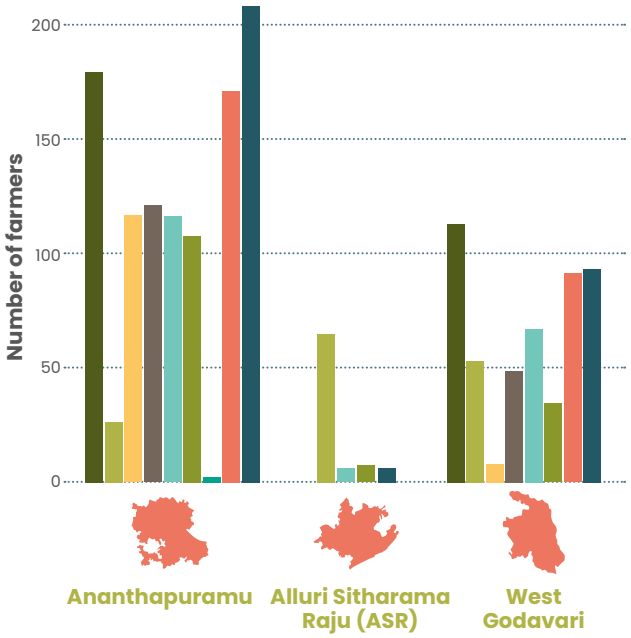


Figure 1. Inputs used by farmers during the Rabi season.

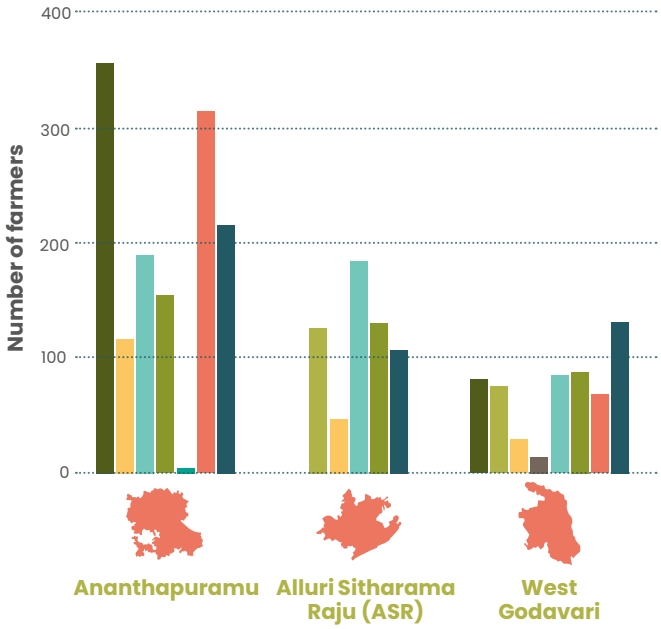
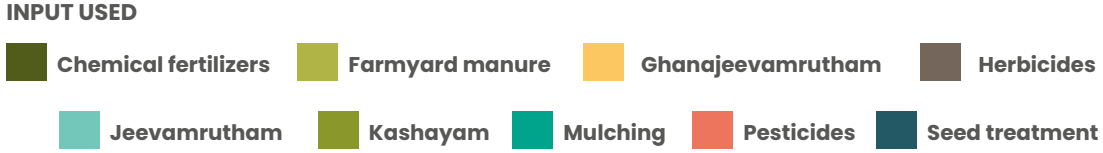


Figure 2. Inputs used by farmers during the Kharif season.



Addressing Socio-economic Barriers to APCNF Adoption

Actionable steps

- **Inclusive capacity building workshops:** Organize district-wide workshops on small plot productivity using APCNF practices. Tailor workshop materials and delivery methods to cater to farmers with varying educational backgrounds, ensuring accessibility for all through clear language, visuals, and practical demonstrations. Evaluate learning outcomes to measure workshop effectiveness and refine future training programs.
- **Empowering women in APCNF:** Develop targeted policies and communication channels utilizing female-oriented facilitators to empower female-led households to learn about APCNF practices. Highlight the critical role women play in family food security and how APCNF adoption can contribute to this goal.
- **Cost-benefit analysis and financial support:** Provide training sessions on cost-benefit analysis, comparing chemical farming and complete APCNF practices. Empower farmers to make informed financial decisions through a clear understanding of long-term cost savings and potential yield increases with APCNF. Implement a financial subsidy program to assist farmers during the initial transition period, offsetting upfront costs for input preparation, land preparation, and potential additional labor needs. Design the program to encourage long-term adoption and self-sufficiency in APCNF practices.
- **Market development:** Facilitate the creation of APCNF-specific marketing channels and farmer cooperatives to ensure fair pricing and access to premium markets for APCNF produce, especially for farmers in Ananthapuramu and West Godavari interested in commercialization.

Socio-economic factors impacting APCNF

Several socio-economic factors influence the adoption of APCNF across the three districts studied: Ananthapuramu, West Godavari, and ASR.

The widespread presence of small, land-limited farms (marginal farms 0 >1 ha) across the studied districts restricts experimentation with new agricultural practices like APCNF. This is further exacerbated by the lower land ownership rates in West Godavari (39%) compared to Ananthapuramu (98%) and ASR (97%). Farmers with **secure land ownership** are naturally more inclined to invest in sustainable methods that benefit the land in the long run, creating a disincentive for those with less secure ownership.

The data also reveals many farmers have **limited formal education** (mostly no schooling or primary). Thus, information accessibility emerges as a point of importance while drafting training materials and conducting trainings

Further compounding the issue is the low participation of female farmers in APCNF training programs, particularly in ASR and West Godavari, despite their significant role in household food security. **Addressing this gender gap** is crucial to ensure successful implementation of APCNF practices.

Cost considerations also vary across districts. Full APCNF practices **require higher upfront input costs** compared to traditional methods in Ananthapuramu and ASR. West Godavari, however, showed a different trend with higher input costs for chemical plots.

Finally, farmers in Ananthapuramu who are interested in **commercializing** their APCNF produce lack access to appropriate market channels where they can receive fair prices. Selling in regular markets does not guarantee a profit for their APCNF products, highlighting the need for improved market access strategies.

Impact of climate change and adaptation measures

Actionable steps

Equip farmers in all districts with tailored **climate change mitigation** strategies, such as establishing agroforestry systems, utilizing mulching techniques, and implementing diverse cropping systems like intercropping.

Enhancing APCNF with climate-resilient practices

Declining crop yields over the past decade plague all districts. Farmers blame climate change, pointing to rising temperatures and unpredictable rainfall patterns. This erratic weather wreaks havoc, causing frequent droughts, crop failures, and reduced soil moisture. Flooding and increased pests and diseases further compound the problems.

The data reveals a crucial gap: **underutilized practices** that could combat drought and moisture loss (Figure 3). **Agroforestry systems**, for example, act as wind barriers, shielding precious soil moisture from evaporation. Their deep roots act like natural channels, directing rainwater deeper for crops to access during dry periods. As leaves decompose, they enrich the soil, further enhancing its water retention capacity. Additionally, trees create cooler, more humid microclimates, reducing water loss for crops. This natural approach fosters a drought-resistant ecosystem.

Similarly, **mulching** offers a solution. By creating a physical barrier, mulch significantly reduces evaporation from the soil surface. It also helps retain moisture by slowing down water runoff, allowing more to infiltrate the soil. Mulch acts as a natural weed suppressant, ensuring water and nutrients reach desired plants. Furthermore, it regulates soil temperature, keeping it cooler during hot weather and minimizing water loss through transpiration. Over time, decomposing mulch improves soil health, further enhancing its ability to hold onto water.

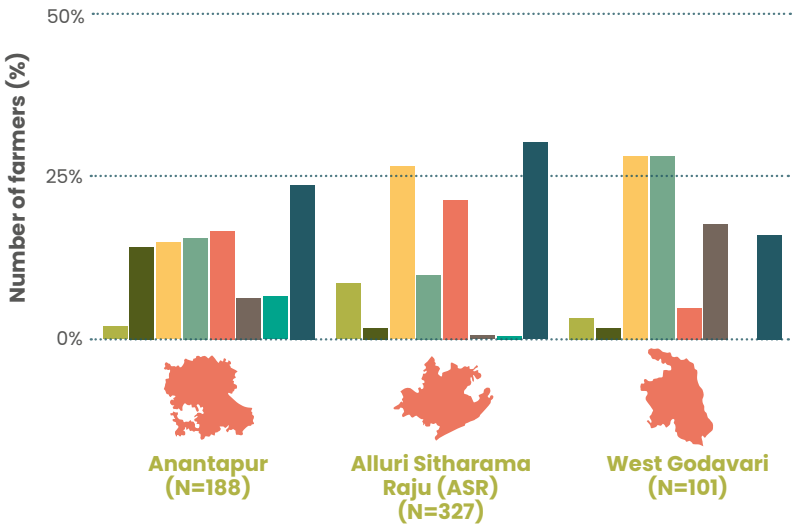


Figure 3. Modifications made by farmers in the different districts to combat climate change.

Conclusion

Positive impacts of APCNF practices like low cost of inputs and good healthare highlighted in the study. However, barriers like time consumed in input preparation, availability of raw materials/inputs, compromised capacity to adapt to novel methods still persists. Agrochemicals are also more easily accessible compared to APCNF inputs in the three districts.

Making natural farming inputs more accessible is crucial for scaling APCNF. Alignment with agriculture extension programmes, promotion of farmer cooperatives, agro - enterprises can help to overcome this barrier. Continuous public policy support is also needed at all levels, from making inputs available and accessible to technical support and market development.

Furthermore, considering the environmental benefits of natural farming in contrast to agrochemical based agriculture, public policy should consider remunerating APCNF farmers for the avoided cost of the impact of conventional agriculture on human and environmental health. An initial remuneration option could be ensuring access to input subsidies for APCNF farmers. Currently, natural farming farmers have to forgo some of the input subsidies they receive for example inorganic fertilizer. Making the input subsidies accessible for natural farming farmers can be a key turning point for scaling APCNF adoption.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