



AME Foundation promotes ecological agriculture among small and marginal farmers in the semi arid areas of the Deccan Plateau by generating farming alternatives, enriching farmers knowledge, linking development agencies and sharing experience.

AMEF works in the dry regions of three states of Deccan Plateau, Karnataka, Tamil Nadu and Andhra Pradesh. It adopts equitable and gender sensitive participatory development processes in all its development interventions and research initiatives.

AMEF facilitates capacity building of its partners by learning and sharing through structured programmes such as FFS and participatory processes like PTD, field visits, field days, workshops, seminars, and by facilitating formation of crop based working groups and Stakeholder Concerted Action platforms. AMEF fosters effective networking with NGOs and farmers groups and by building institutional linkages to strengthen and sustain the development processes.

Central Unit

AME FOUNDATION

No. 204, 100 Feet Ring Road,
3rd Phase, Banashankari 2nd Block, 3rd Stage,
Bangalore 560 085
Phone : 26699512 / 26699522 / 26794522
Fax : 26699410
Email : amebang@giasbg01.vsnl.net.in
Website : www.amefound.org

Area Units

Andhra Pradesh : Madanapalli, Mahabubnagar
Karnataka : Bellary, Bijapur, Raichur
Tamil Nadu : Dharmapuri, Tiruchi



Dry Farming As The Second Front In Agriculture Development

AME is devoted to promoting ecological agriculture as a means to livelihood improvements and environmental stability

R. Dwarakinath

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FOUNDATION

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Vision

AME subscribes to a global, socio-political and economic system, which affords just and equitable opportunity for all, in the development process. AME recognizes that in the prevailing circumstances, the worst affected are a large number of disadvantaged families dependent on farming in rain fed areas, with a future rapidly going out of their control. AME believes that sustainable livelihoods for all are attainable through a systematic ecological approach to the development process.

Mission

AME is committed to realizing its vision through a holistic perspective in all its endeavours. AME will work towards sustainable livelihoods through innovations in technology, harnessing indigenous and advanced knowledge systems. AME will promote sustainable agriculture and natural resource management systems that address issues of ecological degradation. These developments will be disseminated widely for empowering the resource-poor and disadvantaged farm families and communities. In generating these alternatives, AME will integrate the needs of social development including mainstreaming of gender and equity issues. These efforts will be complemented with the facilitation of collaborative and participatory processes for both effective dissemination and advocacy.

Dry Farming As The Second Front In Agriculture Development

R. Dwarakinath

Sixty years ago, at the time of attaining Freedom, India inherited a stagnant agriculture and an enormous food deficit. Fortunately, the Green Revolution, with its seed-fertilizer technology, provided us the much-needed means to overcome the threatening food problem. But, it also left, in its wake, an uneven development in agriculture and a host of formidable maladies, arising from over use of chemicals and mono cropping practices.

Since then, two generations of farmers have gone. Economic context has changed. Resource base in farming has changed. The very purpose in farming has also changed. Farming is no more the simple family pursuit of the past for subsistence.

But, our development goals and strategies have hardly changed. This has brought agriculture development to a blind end, again. Only some fresh thinking can save us from a crisis.

The burden of this paper is to bring home the realization that agriculture development remains incomplete without due attention to dry farming, and that the crux of the matter is capacity building of the middle level farmers.

AMEF Policy Advocacy Series includes opinions, views and experiences relevant for consideration in the context of policy formulation. These are either based on authors's own views or based on AME's experiences, but, consistent with the organisation's overall vision and mission. The series is meant for wide circulation among those interested in addressing issues related to agricultural development and seeking alternative view points.

Agriculture development is in disarray

Slump in agriculture growth is disturbing. There has been a growing concern about the performance of Indian agriculture, in recent years. In October 2005, the Prime Minister, addressing the agricultural scientists in a national meet, repeated Jawaharlal Nehru's statement that "Everything can wait, but agriculture cannot wait," and declared that the Government attaches the highest importance to achieving a 4% growth rate in agriculture, to support about 10% growth rate in the national economy. The reference was to the fact that, for many years in the Tenth Plan, the growth rate was below 2%. A year later, for the first time in decades, the country had to import 5 mt of wheat. Identifying some basic reasons, Sharad Pawar, Union Minister for Agriculture, states as reasons - population pressure, diversification of farmland and sharply declining budgetary support to agriculture. M.S. Swaminathan seriously warns "The farming sector is fast heading for a total collapse if no rapid remedial measures are taken."

Efforts to improve are not yielding results. In fact, for about ten years in the past, several strenuous efforts have been made to push up the pace of development in agriculture. Budget support was raised; credit supply was stepped up; and minimum support prices were extended. Also, investments were enhanced; infrastructure facilities were expanded; and industrial support and export opportunities were strengthened. Last year, an additional central assistance of Rs. 25000 Cr to the States was offered, apart from a special allocation made to the agricultural universities. But, all this did not make a big impact on the growth rate in agriculture.

Time to look beyond commodity production. Possible reasons for poor growth, however, have not been systematically explored. The assumption may be that what is being done at present is the best under the circumstances, and nothing more is needed. But, this "more of the same" is not taking us very far. Development being a change inducing process, we have to address emerging issues as the situation changes. This does not seem to be happening. Here is a glaring example. M.S. Swaminathan, who headed the National Commission on Farmers (NCF), stated a few days ago (The Hindu, 1 Jan 2008) that the Government is bringing out a National Policy on Farmers (NPF) which is calling for "a paradigm shift from commodity-centred to human-centred approach" in agriculture development. But, in the same week (The Hindu, 25 Dec 2007), the Union Government announced the selection of districts in States like Karnataka for enhancing the production of various commodities, under National Food Security Mission (NFSM). Even though there is nothing wrong in this effort, the sore point is that, beyond the commodity production, there is a need for devoting attention to Human (Farmers) Resource Development,

as urged by NCF. But, we seem to be ignoring this point. Who will deny that farmers are the key players in agriculture development? Then, why are they not brought into the mainstream?

Development requires conducive conditions. The redeeming feature is that whatever has been done for development so far is, indeed, not only relevant but also essential. Because, creating conditions like more irrigation, research, extension, infrastructure, market facilities and economic incentives, amounts to establishing the **pre-requisites for development**. As they are, they are the products of macro economic perceptions. Without them, progress in agriculture would hardly be possible. But, all of these will only amount to the "**necessary conditions**" for development, and not the "**sufficient conditions**" for development. As such, the development strategy has to become more adequate by devoting attention to creating the "sufficient conditions" as well. Only then farmers would be able to utilize the necessary conditions more effectively.

A look at the farmers' world is revealing

The micro level perceptions are overlooked. To gain a better understanding of the need and scope for the "sufficient conditions," it is essential to have some insights into the related micro systems. The farm sector has undergone a tremendous transformation. What was once just **Family farming**, a simple family pursuit for subsistence, became **Surplus farming**, seeking national food security, employing the Green Revolution technologies. Then, in the following years, **Market farming** became necessary as the barter economy in rural life yielded place to money economy, and the farmers had to have cash incomes for farming and for family living. Finally, with the entry of liberalization, privatization and globalization, it became **Business farming**, with an eye on the unit costs and product quality, to be competitive in the market place. Here are some basic insights relevant to the present day situation.

Perception one: Agriculture has acquired certain features that have become strategically important for development planning.

- # Today, the farm sector has two parts **Rainfed farming and Irrigated farming**
- # Today, farming has a two-fold purpose **Providing livelihoods and Creating wealth**
- # Today, agriculture sector is made up of two segments **Production segment and Support segment**
- # Today, agriculture development is a joint responsibility **Farmers as Producers and Government as Enabler**

Lesson: The development strategy suitable for the early years has to now undergo a paradigm change to meet the present day needs.

Perception two: There are some crucial considerations about agriculture that should pervade development planning.

- # **Farming is what farmer does.** What he does depends on what he knows, what he believes out of what he knows, and what he is able to do out of what he believes. Hence, durable changes in farming must begin with changes in farmer's knowledge, attitude and ability.
- # **Farmer is the only end user** of the natural farm resources, new technologies and development opportunities. Farmers should be helped to use them better.
- # **Elite farmers are quick adopters**, good managers and find their own way in a changing world around them. They can do better with some appropriate support.
- # **Non-elite farmers usually lag behind**, are relatively good in using the traditional knowledge but poor in using the new technologies and purchased inputs. It is they who should be brought into the development mainstream.

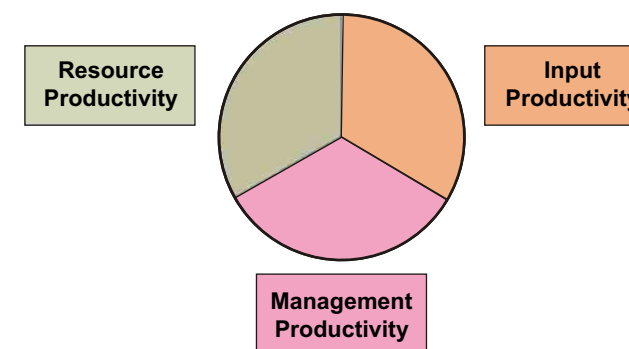
Lesson: Elite farmers must be given continued support to make further progress and non-elite farmers must be given focused attention to ensure livelihoods and to raise the growth rate in agriculture.

Perception three: Efforts in agriculture development all these years were focused on one goal of improving **input productivity** for better yields. This was the main thrust in Green Revolution where returns to seed, fertilizer and technology inputs were enormously increased. A more deep-going development effort in agriculture must go further, seeking improved **resource productivity** as well as improved **management productivity**.

Input productivity was the focus of the Green Revolution. This is relatively easy since it is generally adopted in favourable situations like irrigated farming. Here, inputs like seed, fertilizer and technology of better quality will normally yield better returns. The progress in agriculture seen so far is a product of this kind.

Resource productivity is a more difficult task. The natural farm resources, under a given climatic situation, are the soil, water and bio diversity. Enhancing the productivity of these resources under irrigation is far easier than under dry farming conditions. The task in the post-green revolution era involves mainly this objective.

Managerial productivity encompasses both these goals. Good farm managers continuously improve productivity in both these areas. But, **all farmers are not equal** in their management abilities. While elite farmers are better due to their socio-economic and cosmopolite characteristics, the non-elite farmers seem to lag behind.



Lesson: For lifting agriculture growth rate in the future, it is evidently necessary to go beyond input productivity, and focus attention, in addition, on resource productivity as well as in building the management abilities of, particularly, the non-elite farmers.

Dry farming situation differs vastly

What is the second front in development? It is possible to visualize the present day agriculture sector as made up of two broad segments, in terms of farming areas, farm populations and the new technologies employed.

It is common knowledge that the Green Revolution enabled the country to quickly attain the food security. It is also well known that it benefited only certain farming areas like the irrigated tracts and certain farm people like the resource-rich families, based on certain technologies requiring purchased inputs. This tract of better endowed farm areas, farm families supported by external technologies makes up the **first front in agriculture development**. It is also widely acknowledged that, while this revolution lifted the yields in this segment, it left in its wake, not only many second generation problems but also bypassed vast dry farming tracts along with the dependant farm families.

If the country has to live, Agriculture has to live

– Dr Vithal Rajan

The **second front in agriculture development** is made up of dry farming areas and resource poor farmers, supported by a set of low-cost traditional technologies. The development approach with the focus on dry farming, resource-poor farm families and affordable alternative farming practices has gone beyond conceptual stage into implementation stage. Thus, the second front has now become a reality.

What is the significance of the second front? The importance of dry farming has been overlooked far too long in our hurry to overcome the food problem in the early years, and in our complacency after attaining food security in later years. But, for a number of reasons we cannot delay anymore in devoting systematic attention to dry farming.

- # Even after sixty years of Freedom we remain an agricultural country. A large proportion of the population (70%) makes a living in farming. The rural poverty persists. Rural-urban income disparity is widening. The trend can be largely reversed only by rehabilitating dry farming.
- # Per capita availability of food grains (like wheat), pulses and edible oil is rapidly declining, foreboding days of scarcity, once again.
- # It is estimated that to keep the national economy growing at about 10%, the growth in agriculture has to be about 4%. But it remains below 2%.
- # If agriculture sector should not be a drag on the total economy, it should be faring better. The first front having been exploited so far, opportunity now lies more in dry farming than elsewhere.
- # The dry farming segment encompasses nearly 70% of the farm resources of the country. In recent years, it is said that for a variety of reasons, the conservation of the natural farm resources has not been as good as necessary. If we have to quickly stem these degeneration processes, rehabilitation of dry farming is obviously necessary.
- # The harsh impact of the climate changes is more severely felt in dry farming by way of loss of vegetative cover, drying up of surface water bodies, shifting rainfall patterns and receding ground water levels. Countering these effects is possible only by rehabilitating dry farming.
- # Even a marginal productivity improvement in dry farming will amount to a notable growth in the sector because of the large scale of dry farming. This is apart from the gains in livelihoods and environmental conditions.

Development change begins with farmers. If farmers are the producers and all others are enablers, whatever improvements are wanted should begin with farmers. This improvement should be reflected as two prominent features - **unit costs** of farm products and their competitive **quality**. With this in mind, if we look at the past development, what do we see? Who is gaining ground? We see that over the years, farmers evolved into two distinct groups in the development process Elite farmers and Non-elite farmers.

Elite farmers are small in proportion and form the creamy layer of the farming community. They have social status, economic ability, wide contacts, high ambition and are better managers in whatever they do. They are world-class farmers who made a glorifying use of the Green Revolution. They are in the development forefront, and even today, they make quick adjustments to the changing world around them; and make full use of the development opportunities created by the government.

Non-elite farmers are large in proportion, and form the bulk of the community. They are the middle level farmers having the innate abilities to make progress but suffer some constraints. They are resource-poor localites, risk shy and are often comfortable as conformists. At present, some of them seek to imitate the successful large farmers, but make mistakes with extreme consequences. In fact, they have to become participants in development, if big changes are to be seen. But, for this they need some hand-holding in terms of capacity building.



Farmer groups - Learning together and learning from each other

Dry farming requires an approach of its own

What are the basic considerations in developing dry farming? For the development planners, all these years, dry farming was a “poor cousin” because of their preoccupation with irrigated farming. Whatever secondary attention was spared to dry farming, it was using the diluted technologies meant for irrigated farming. On the research side, there were some useful technologies produced. But, these technologies did not reach the dry farmers in a systematic way and in proper combinations. It is high time therefore that some planned efforts in the form of appropriate strategies are brought into operation. There are three crucial focal points that need to be kept in sight.

- # **Reaching the unreached.** For the most part, in the development activities in the past, the frontline farmers were the elite farmers. There is nothing to blame here, except that the non-elite farmers were not given the attention due to them. The latter are mostly engaged in dry farming. Some among them occasionally go in for new technologies, imitating the larger successful farmers, making mistakes and paying a heavy price. But, the time has come for reaching out to this big segment of farmers to associate them in systematic agriculture development. They too are in need of this attention for livelihood security, as they have nowhere else to go for a living. They are in need of capacity building in terms of widening their horizon and improving their abilities. This involves enhancing their management competence in input productivity as also in resource productivity. They also need guidance regarding suitable additional income generation activities and management of market operations. .



Mixed cropping as an alternative

- # **Tapping the potential in dry farming.** The production potential in dry farming has not been adequately exploited in the past. It is necessary that it becomes the primary objective for the future. The dry farming area is as large as 70% of the entire farmland. It now contributes only 40% of the production, while supporting nearly 60% population, directly. In the context of drastic climate changes, systematic dry farming can mitigate degradation of both on-farm and off-farm eco systems. As such, on its own merit, development of dry farming deserves priority attention.
- # **Alternative farming practices.** The basic reasons for unstable yields in dry farming, as seen earlier, are poor in-situ rainwater management, low soil fertility levels and mono cropping practices. All these are usually quite manageable. The focus has to be on improved agronomic practices that ensure conservation of as much moisture as possible from the rainfall in the root zone of the seasonal crops; upgrading the soil productivity through the application of larger amounts of bulk organic manures; and resorting to mixed cropping and strip cropping systems. In addition, attention must also be devoted to generating more manurial bio mass and to practice other income generation activities.

What strategy suits dry farming development best? Durable changes in dry farming involve modifications in the pattern of using the natural farm resources like soil, water and bio diversity in a given climatic situation, the inputs like seeds, fertilizers and pesticides, and the production enterprises and the production practices. Many people, including farmers who practice dry farming, and others who enable them, are skeptical about any possible tangible results in dry farming.

Hence, we need a well-planned strategy. Durable improvements intended in dry farming also happen to be the goals in sustainable agriculture or eco farming. In this approach, establishing cases of visible benefits of eco farming in local situations forms the first step. Then, using these situations for building awareness and training farmers and enablers is the next step. Priming the areas around these cases, scaling up the new practices in the region and providing outreach services make up the final step in this venture. The strategy is normally to place, in a district, a small **Team of promoters of eco farming**, well trained in generating alternative farming practices and capacity building activities.

Agriculture is the key player in reducing the degradations in the ecological systems

– FAO

1. Establishing the eco farming base. The Team normally selects two clusters of three villages each, to start the work. In each of these villages, it organizes **SHG-like farmers groups**, with about twenty farmers in every group. The formation of these groups is usually initiated in Gram Sabhas so that a tacit sense of belongingness is ensured. The members start with the savings activity like the SHGs, which serves the vital purpose of building mutual trust, cooperation and dependence, as a strong binding force. These groups then get involved in keen internal deliberations and get associated in intensive learning activities like PRA sessions, study tours and activity planning meets to plan trials of some new practices. Adopting a field experimentation approach, they go through a PTD exercise with half-acre plots, along with check plots. Thus, they generate a few alternative farming practices that are locally relevant, affordable and acceptable. It is the starting point of the sustainable agriculture process.

2. Priming the area. New practices found useful are adopted fully by the members. Also, the groups share their learning with other farmers in the village and surrounding areas. Thus, farmer-to-farmer extension of better practices will spread to most of the farmers in the locality. Since these are essentially affordable improvements, often saving costs, this spread will be for the most part autonomous, but will also be supported by the Team efforts.



Keen observations - key for learning

3. Scaling up the innovations. The basic objective of the Promotional Team is to ensure that the useful alternative farming practices find their adoption as widely as possible. Since the Team's manpower is limited, it makes efforts to build networks of established NGOs and works through them. For this purpose the Team not only trains the staff of willing NGOs, but also extends field support. Because the NGOs already operating in the region would have developed working relationships with the local communities, promoting eco farming practices through them will be relatively cost-effective. More over, by this means, the Team would have multiplied itself several fold. Thus, a much larger manpower engaged in rural services would have been brought into promoting eco farming. Thus, the NGO network strategy hastens the spread of the alternative farming practices, in a much larger area, much more rapidly.

4. Outreach activities. As the establishment of eco farming bases and the scaling up activities get going, and attract attention, the word will spread far and wide. Soon, there will be calls for details, visits and spot guidance. These are met by the Team in the form of outreach service activities. These individuals, groups or agencies are given needed data, and support in the form of visits, study tours and training opportunities.

Default entails serious consequences

Reckoning the stakes involved. Attention to dry farming has been denied far too long in the past. There has been a pre-occupation with irrigated agriculture till now for ensuring food security and enhancing growth rate in agriculture. But, neglecting dry farming any further will entail severe penalties.

Social welfare responsibility. A large population is still dependent on farming for their livelihood, mostly in dry farming. Their life has become already unstable. Further degradation of dry farming will perhaps uproot them from farming. Considering their size, rehabilitation of this population elsewhere is not possible, at least for the present. Supporting this population through other social welfare measures is also not practical. By overlooking the opportunity of supporting them in dry farming, the country will be pushing itself into an avoidable crisis.

Drag on the national economy. In recent years, agriculture is growing at less than 2% while the total economy is moving towards 10%. A healthy growth rate of 4% in agriculture is what is sought for. Thus, by lagging behind, agriculture is seen to become a drag, increasingly, on the national economy. With further neglect of dry farming, the problem is likely to become more severe.

- # **Loss of precious land resources.** Dry farming today is estimated to encompass nearly 70% of the land wealth in the country. Already, these resources are suffering serious losses due to poor management of natural farm resources. Already a large amount of top soils and vegetative land cover has been lost. Further neglect of dry farming will cause irreparable damages, which is somewhat avoidable, at this stage.
- # **Mitigating the adverse effects of climate change.** The adverse impact of global climate change has not been adequately realized at the ground level in the farm sector where some timely counter measures could be taken. Immediate attention to dry farming will serve this purpose to some extent. Any further delay in devoting due attention to this issue will only make matters worse.

***If you want to win the game,
it is not enough to look at the rules
and prepare the ground,
but more essentially prepare the player.
– R.Dwarakinath***

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