Women farmers, crop diversity and seed politics in semi-arid India

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Introduction

Seed politics?
Living organisms such as domesticated crops or animals are increasingly subjected to various forms and degrees of management, regulation, manipulation and control. The idea of control implies power relations that are not always explicit but nonetheless very real, between at least two entities or groups (states, communities, individuals, corporations).

Understanding seed politics entails looking at the means through which control and access to plant genetic resources are secured, contested and restricted (Kloppenburg 1990). This has been is a central theme in my research, at the crossroads between political ecology and women’s studies. Recent studies have shown that gender relations play an important role in the management of agro-biodiversity in many parts of the world (Howard 2003).

Semi-arid India

I would like to give a brief description of the agrarian context of semi-arid India, where I have explored gender relations around crops and seeds in dryland agriculture (Pionetti 2005).
Semi-arid regions account for over 60% of India’s cultivated land, and the Deccan Plateau is one such region. The Deccan extends through parts of Andhra Pradesh and Karnataka in South India.

While only 30% of the land in the semi-arid tropics is irrigated, India grows around 80% of all pulses and oilseeds and 90% of minor cereals (any cereal other than rice, wheat and maize) in these regions (Joshi et al. 2001). Cotton, a major commercial crop, has led to severe indebtedness and high rates of suicide amongst farmers in the last twelve years (Vasavi 2010).

There are two growing seasons in the dryland Deccan Plateau: kharif, from June to October (monsoon season), and rabi, from October to January (only grown in black soils that retain more moisture than red soils).

**A glimpse of gender relations in the Deccan Plateau**

As an introduction, I would like to offer a brief anecdote about agriculture and gender relations in the Deccan Plateau.

When you go to a village in the Deccan Plateau, say in the Telangana region of Andhra Pradesh, and ask men and women to speak separately about agriculture, you are left wondering whether these two groups are really from the same village.

Men speak extensively about the commercial crops grown in the area (it could be cotton, groundnut, sugarcane or soya bean): yield, input costs, problems with irrigation, labour, electricity. Their description of modern agriculture sometimes contains a sharp critique of modernity: small farmers describe how dependent they have become on external inputs, irrigation, electricity, markets, etc. for benefits and returns that can be quite marginal or precarious. A bad year – in terms of weather patterns or pest attack – can result in severe indebtedness for resource-poor farmers.

As women know little about input costs and the pesticides applied to cotton (for instance), the subject is of little interest to them. What they do know and speak about with enthusiasm is how they mix different crops in their fields. Women keenly discuss the characteristics of a particular variety of sorghum or dryland rice, the quality of grain or fodder, how sesame is used in various recipes or offerings, the role of mustard in daily cooking or how to store pulses in the home so they do not get attacked by pests or rats. In certain areas of the Deccan Plateau, small women farmers can list up to fifteen crops that they grow to prepare in everyday food for the family. Interestingly, these non-commercial crops are known as chillar pantalu in Telegu meaning “small change crops”.
So there appears to be two very distinct approaches to farming, with a clear divide along gender lines.

In this article, I will attempt to demonstrate four points:

1) Small women farmers do have their own agenda in agriculture.
2) A strong underlying logic exists within this agenda.
3) Highly gendered practices and strategies in crop and seed management are a result of this logic.
4) The agenda is largely undermined by the dominant paradigm of agricultural modernisation.

**Small women farmers’ agenda in dryland agriculture**

**Crop diversity as a gendered domain**

When women farmers from Vaizhapur village describe their cultivation methods and cropping patterns, they say “Kalpi estamu” (“we mix and sow”). Mixed cropping occurs throughout the Deccan Plateau in both subsistence and commercial cultivation systems. Crop associations range from simple ones – combining two crops like pigeon pea and cotton – to very complex associations. There are no strict rules for crop mixes: they depend on the soil type and the needs of the farmer and her household.

Nagubai (from an ethnic minority in Adilabad district of Andhra Pradesh) intercrops cotton, a purely commercial crop, with a diversity of food crops: black gram, cowpea, sorghum and roselle. Rukmabai opts for a slightly different mix containing pearl millet, green gram and sesame. A couple hundred kilometres South south of Adilabad district, in the district of Medak, women farmers follow the same practice of mixed cropping regardless of the size of their holding. On her half-hectare land, subdivided into four fields of red and mixed red soils, Lakshmamma grows a range of cereals (sorghum, pearl millet, little millet, foxtail millet), pulses (pigeon pea, green gram, black gram, cowpea), oilseeds (linseed, sesame) and vegetables during the *kharif* season. While most of these crops are used for home consumption, Lakshmamma also grows cash crops like turmeric and castor (on a small scale).
A compelling nutritional, ecological and cultural logic

Women farmers’ reasoning for diversifying crops in their fields encompasses many dimensions.

• Diversifying crops is a way of dealing with agro-ecological constraints: suitability to different soil types, early or late maturing varieties in order to cope with moisture stress. For example, when she sows foxtail millet on her land in Humnapur, Ratnamma tends to mix all three indigenous kharif varieties: Erra korra (the red variety), Nalla korra (the black variety) and Tella korra (the white variety). Of these three varieties, she identifies the red one to be the most tolerant to drought. Interestingly, botanical research suggests that varieties of different colours have different germination mechanisms and come to maturation at different times. Growing varieties of various colours is thus an adaptation to climatic risk – and it is a common practice employed by women farmers of the Deccan Plateau when they sow not only foxtail millet, sorghum, dryland rice but also field beans, cowpea, pigeon pea, chickpea and sesame.

• Crop diversity is a risk-management strategy: crop association reduces the risk of crop failure due to drought, pests and diseases. For instance, chickpea and wheat are sown in association in the rabi season. “This diverts the rats’ attention from the wheat crop”, explains Lakshmamma. Coriander protects chickpea against Helicoverpa, a devastating pest. Lakshmamma adds that this practice is less effective if neighbouring farmers use chemical pesticides.

• Crop diversity spreads labour over time, such as weeding, which is largely done by women, and it allows for a staggered harvest – which spreads out post-harvest work that is also exclusively women’s work. Post-harvest work includes winnowing, cleaning, sun drying and storing food grains.

• Growing a wide range of crops enables women to meet multiple food, fodder and fibre needs throughout the year while maintaining local food culture. Moreover, a given variety may be grown only because of its ritual use. This is the case for Pyalala Jonna, a popping sorghum, offered to the Snake Goddess.

Before looking at small women farmers’ strategies, I would like to say a few words about edible greens, known to be a good source of calcium, iron, magnesium, carotene, vitamin C and folic acid (Gopalam et al. 1989).
Women farmers speak of three major sources of edible greens to supplement the daily diet:

1) green leaves of crops in their early stages of development, like chick-pea, mustard, fenugreek and roselle;
2) weeds – more appropriately called “volunteer crops” – removed from cultivated fields;
3) wild or semi-wild species that grow “on their own” on non-cultivated land and have proven to be a pool of genetic diversity for crops.

When we speak of rural women managing biodiversity on their farms we consider the way they deal with useful uncultivated plants to ensure their return in or around their fields year after year (Satheesh and Reddy 2000).

**Circumventing power: from strategy to secrecy**

Let me now turn to women farmers’ strategies with respect to crop management. Beyond the obvious factors such as minimising agro-climatic risk or meeting multiple food and fodder needs lies a more subtle and “hidden” logic: women farmers diversify their crops as a means of increasing their bargaining power in the household.

For example, a small farmer from Chilammamadi explains that by sowing three varieties of chickpea instead of one, she obtains a harvest composed of three small volumes (25 to 30 kg) of black, red and brown chickpea. If she harvested one quintal of a single variety of chickpea, she knows that her husband would be tempted to sell it to a grain merchant. By growing several varieties, she thus dissuades her husband from selling the harvest!

Interestingly, several women told me that they discreetly do their seed mix while their husband is busy preparing the plough, just before going out to the field for sowing. This is how they get the optimum mixture of crops and varieties into the ground.

All this goes to show that small women farmers use crop and genetic diversity to fulfil their double agenda of:

1) ensuring daily household food security;
2) building up food stocks as a means of coping with periods of food shortage.
Yet, women farmers’ bargaining capacity is quite precarious, especially since they often lack direct access to land and assets. As a result, when men begin to pursue a different farming agenda because of external factors (subsidies, promotional activities of seed companies, small farmers emulating large farmers and investing in new crops, etc.), women find it difficult to maintain their farming agenda.

Anne-Marie Granié, a French sociologist, speaks of men’s “strategies” and of women’s “tactics” in the context of Moroccan society (Granié 2006). I would like to propose an alternative interpretation of these two terms.

I would argue that in areas where commercial agriculture dominates, and where traditional dryland crops have largely been replaced by commercial crops, small women farmers can no longer maintain their practices and “strategies”. They have to resort to “tactics” in order to continue growing their chillar pantalu (their small change crops). The balance of power has tilted in men’s favour, marginalising the women’s agenda.

The most common tactic I came across was women sowing their beans, mustard or sesame on field bunds (uncropped land), or intercropping beans in a cotton field after sowing had taken place.

Interestingly, this practice is not specific to the Deccan Plateau. Women from other regions in the world develop similar strategies. In semi-arid Kenya, when mono-cropping of cotton displaced crops like legumes, sorghum and millet, women were found “intercropping beans with the cotton where the agricultural extension officers could not catch them” (Wangari et al. 1996).

I would like to draw four conclusions from this first section:

1) Women are managers and custodians of crop diversity in the Deccan, but also in many other regions of the world (Howard 2003).

2) Diversity enables women to make independent decisions about the kind of agriculture they want to practice (low-input versus intensive agriculture, subsistence-oriented versus cash-oriented).

3) When small women farmers envision food security, they are not concerned with productivity per hectare of land. Their aim is to grow a range of locally adapted crops, without damaging the ecosystem, and without becoming too dependent on the market. This is a far cry from how the Public Distribution System (PDS) has tackled food security in India. The PDS hinges on two major cereals – rice and wheat – and has
provided support to the most productive regions, with little or no effort to develop agriculture in least endowed regions. The PDS has precipitated the decline of minor cereals despite their remarkable nutritional value and adaptability to dryland areas. Aware of these shortcomings, the organisation Deccan Development Society (located in Medak District of Andhra Pradesh) worked with groups of women farmers from 32 villages on an Alternative Public Distribution System. Developed in a participatory fashion, this system has proved effective in reclaiming degraded land, restoring diversity in farmers’ fields, creating rural employment and enhancing women’s control over food grains in their communities (Srinivas and Abdul Taha 2004).

**Seed as a political and gendered domain**

In India it is estimated that over two-thirds of farmers produce seeds from their own harvest (Sahai 2000). This estimate is remarkably high if we compare it to the percentage of farmers who use farm-saved seeds in Europe, between 10% and 50% depending on the crop and the country.

Throughout the Indian sub-continent, seed production by farmers is highest in rain-fed systems where food crops make up a substantial part of agricultural production. This is the case for Himalayan regions in Himachal Pradesh, Uttarakhand and the north-eastern states, and for semi-arid areas in Rajasthan, Gujarat, Madhya Pradesh and Andhra Pradesh. However, self-production of seeds is extremely low in regions where commercial crops dominate. Cultivators of cotton, sunflower, maize, pearl millet, vegetables and flowers in Maharashtra, Gujarat, Karnataka and Andhra Pradesh essentially buy hybrid seeds every year from seed dealers (Ramaswami et al. 2002).

**Saving seeds at the household level**

“Save seeds, no matter what”. This simple formula encapsulates the wisdom passed down by mothers and mothers-in-law in the realm of seed management in the Deccan Plateau. Women farmers – from small, medium and large farming families alike – are in charge of seed-saving practices, which include seed-selection; sorting, processing and drying of seeds; and storing seeds until the following sowing season.

Seed stocks range from a few kilograms to one or two quintals in the case of large farms. Seed-saving involves a considerable amount of time and skills on women’s part.
Saving seeds at the household level enables women farmers to:

• cultivate a good crop mix on their land
• carry out seed selection in their fields
• sow their crops at the optimum time
• build up their seed capital
• lend seed to other farmers
• keep out of dependency on market and money-lenders
• secure household level bargaining power.

Tuljamma, who farms 0.4 hectare with her husband in Shamshuddinpur, says that “even buying a single ser (1.5 kg) of seeds is very difficult”. Hence, saving seeds is vital in order to keep her land productive.

Moreover, seeds represent an asset that women have control over, unlike money: “Money doesn’t last, but seeds do remain with us” says Narsamma, a Dalit farmer. Poor Dalit women find it especially important to “stand on their own feet” by being self-sufficient in seeds (which saves them the trouble of having to ask upper caste farmers for seeds in case of shortage).

Grain and seeds are very much a part of the domestic sphere controlled by women. They use various strategies to maintain this control, including concealing information from their husbands. The notion of “not giving the exact information” in order to safeguard the freedom “to do as we please” repeatedly comes up during discussions held in the absence of men.

“If I keep aside two addalu (12 kg) of seeds, I’ll tell my husband that I’ve prepared one adda; that way I can give the other adda as a seed loan without telling him” explains Tuljamma (Pionetti 2005). In well-off households, women do not generally feel the need to conceal information about grain and seed stocks from men. This difference highlights that each measure of grain represents a much higher stake in poor households than wealthy households.

Small women farmers’ testimonies led a male observer witnessing a collective discussion in Pipri to declare that “women keep seeds like a secret”. This astonishing commentary exposed, in a nutshell, the magnitude of gender relations in the management of crop diversity and seed stocks.
The local seed economy in women’s hands

Apart from saving seeds at the household level, women farmers also engage in local seed exchanges.

In case of seed shortage for a given crop, small farmers tend to turn to other farmers. In the Deccan, seed loans come with an interest: for 1 kg of seeds borrowed, 2 kgs of seeds are returned after harvest for monsoon crops (a “protocol” referred to as Nagu in local Telugu language), and 1.5 kg for winter crops (known as Deedi). This constitutes an incentive to “build up seed capital”, which is about saving enough seeds from a harvest in order to be in a position to lend seeds to others.

In fact, seed loans are part of small and landless farmers’ strategies to increase their access to grains for food. For virtually every crop she grows, Tuljamma saves a lot more seeds than she needs for her own land. In all, she gave seeds to 15 people in 2001. The volume of grain she has earned approximately amounts to 30 kg. This is not a huge quantity, but it translates into significant savings on monthly food expenditures, especially in the case of expensive pulses like pigeon pea.

Poor female-headed households have been found to be especially active in the non-monetary seed trade taking place in communities. They turn some of the grain they earn as daily wage into seed, provide small seed loans, and receive double the amount in return. Landless families thus benefit indirectly from the local seed economy that exists in most Asian communities.

Seed-saving practices and seed exchanges are therefore central to the reproduction of agricultural systems throughout Asia. They are relevant for agronomic, economic, ecological and socio-cultural reasons, and extremely significant from a gender perspective.

Commercial seeds and the demise of the local seed economy

Commercialisation of agriculture goes hand in hand with the introduction of commercial seeds, and especially hybrid seeds that cannot be re-sown. Over a period of time, the widespread use of commercial seeds leads to the collapse of localised seed systems controlled by women farmers.

For women farmers, commercial seeds clearly carry a different connotation when compared to farm-saved seeds. Some of them say, for instance, that “sowing these seeds is like sowing in water”, referring to the problem of “spurious” seeds in India (Pionetti 2005, 158).
Commercial seeds also introduce new forms of discrimination: “If we go in these shabby clothes, we are sure to get second-rate seeds”, say poor women from Adilabad. When asked, “How would you cope if you had to buy all your seeds?”, women express deep concerns:

- “It’s expensive to buy seeds. And if we lose the crop, how will we repay our debts?”
- “They don’t provide us fertilisers on time. How will they provide seeds on time?”
- “Without our own seeds in our hands, we would have to leave our land fallow”
- “When everybody has to buy seeds, where is the freedom for farmers?”

These assertions eloquently speak of women’s reluctance to become dependent on the market. Industrial seeds adversely impact local seed economies managed by women farmers. Since commercial seeds have come into Nawabpet, a village of Andhra Pradesh, “there is no more giving and taking [of seeds]”, says an old man.

In areas of Andhra Pradesh where commercial crops dominate, all the seeds are bought from the market. It is usually men who are responsible for buying seeds. Women farmers only save a few handful of seeds for “small change crops” like green gram, black gram, mustard and sesame.

The traditional modes of seed exchange have entirely disappeared and along with them, women’s control over seeds. As Bina Agarwal puts it, “…women have been excluded from the institutions through which modern scientific knowledge is created and transmitted” (Agarwal 1999). Indeed, men dominate all the channels through which “modern agriculture” spreads, a trend which tends to reinforce the marginalisation of women’s farming agenda.

Genetically modified seeds are another step in the process of seed commodification. Anthropologist Glenn Davis Stone speaks of “agricultural deskilling” in Warangal, a district of Andhra Pradesh where cotton has virtually displaced all other crops expect for rice (Stone 2007). His study shows that farmers no longer access any form of ecological knowledge in their decisions as to which genetically modified cotton variety to grow: they mostly go along with fads and commercial ads.

Many local organisations are working with local communities to
revive local seed-saving practices and build community seed banks, as these constitute an appropriate and ecological alternative to expensive commercial seeds controlled by the seed and biotechnology industry (Almekinders et al. 1994).

**Conclusion**

What this research has shown, essentially, is that there still exists in semi-arid India a close and almost intimate connection between crop diversity, household food security, women’s priorities in agriculture and autonomy in seed production.

In fact, autonomy has emerged as a central theme in this research. Autonomy in a cultural, economic and political sense: it is about people’s ability to make decisions that are not only guided by the market, but that also account for their sense of well-being, dignity and identity.

To grow one’s own food is not just a production activity for women farmers of the Deccan Plateau. Repeatedly, a sense of contentment and self-respect comes across when farmers speak about their land and dryland crops. The Indian anthropologist A. R. Vasavi (1999), who also worked in dryland communities in South India, shows that farmers attribute three essential values to traditional dryland agriculture, namely:

- the autonomy it generates
- the organic nature of the land and crops
- the strength or vitality bestowed on those who consume the food produced.

We need to bear in mind, however, that this view is mostly alive in the minds of middle-aged and old farmers. Clearly, younger generations are more inclined to participate in the market economy and to rely on consumer goods.

Ultimately, what this research drives at is the need for small women farmers to be in a position to make independent decisions about what they grow, how they grow it, why and for whom. I believe these are the basic premises of food sovereignty.

Let me end with a question. There is increasing realisation of the threat posed by climate change on the one hand, and on the other, of the value of biodiversity in adapting to climate change. Is there any
chance, then, that small women farmers, who are being pushed through the back door by modern agricultural policies, might re-enter history through the front door as their knowledge on biodiversity begins to be valued, and perhaps even acknowledged as vital for the future of humanity?

References