Inflections in Agricultural Evolution
Contemporary Commodity Complexes and Transactional Forms in Interior Tamil Nadu

SUDHA NARAYANAN

This paper examines the emergence of specific commodity complexes and transactional forms in eight interior districts in Tamil Nadu focusing on gherkins, marigold, broiler, cotton and papaya. Their growing importance is a response to the structural changes in the larger economy and the contextual constraints on agriculture in the region. It posits that this phenomenon represents an inflection in the trajectory of agricultural growth in the region because of three distinct features. First, the new commodity complexes have strong links to agribusinesses and global markets. Second, downstream players exert an unprecedented influence and control over production practices. Third, the need for control over quality demands particular transactional forms such as contract farming. The paper argues that despite some economic gain, challenges of a different kind emerge and the normative implications of these changes are as yet unclear.

1 Introduction
Recent discourses on the trajectory of Indian agriculture offer dichotomous views – of the sector being in a crisis, and also of it prospering with a welcome diversification into high-value commodities, prompted by the growing agrofood processing and retail sectors.1 Advocates of either view offer evidence based on macro-level data and micro studies focused on the predicament of the farmers in particular regions. There are few studies that focus on specific commodity markets at a meso level to understand recent agricultural transformations in the country. This article is based on the premise that a focus on the emergence of specific commodity complexes and transactional forms can complement other approaches to understanding the ways in which ongoing changes shape agricultural practice within particular regional contexts. It believes this can shed light on the problems and prospects of these changes.

This study attempts such an analysis of agricultural markets and transactions, focusing on five high-value commodities – cotton, marigold, gherkins, papaya and broiler – in eight administrative districts in Tamil Nadu – Coimbatore, Nilgiris, Salem, Erode, Karur, Dindigul, Tiruppur and Madurai.2 The five commodities have very different histories in the region, yet share a recent past in terms of their roles in shaping the trajectory of contemporary agriculture. Three of the crops, gherkins, papaya and marigold, were introduced to the area recently, in the early 1990s and represent “new” commodity complexes with strong links to the processing sector and to global markets. Cotton and broiler have occupied a prominent place in the agrifood system of the region for much longer. The transformative elements in these sectors have been in terms of “new” transactional forms such as contract farming. While cotton’s links with global garment commodity chains run deep, broiler is oriented to the domestic market.

This paper speculates that the emergence of crops such as gherkins, papaya and marigold and the proliferation of contract farming arrangements in traditional commodities are responses to the challenges posed by rapid structural changes in the regional economy and its contextual constraints, representing inflection points in the path of agricultural evolution in the region. At the same time, it argues, this poses challenges of a different kind and the normative implications of these changes are not quite clear. Indeed, the degree to which this adaptation is successful and sustainable is still an open
question. This study illustrates aspects of these commodity complexes drawing on field research done between 2007 and 2010. It combines interviews with agribusiness representatives, field-level functionaries and traders in these sectors and a systematic survey of 850 farmers, including those who grow these commodities under contract as well as those who do not. The word “new” is used somewhat expediently, for contract farming as a transactional form has been prevalent in the state for a while, for a variety of commodities such as sugar cane and seed cotton. Similarly, though cotton is considered a traditional (an “old”) crop, it was introduced by migrant communities from the north and became an integral part of the cropping pattern in parts of the study region only in the early 20th century with the emergence of new varieties and the development of the cotton industry. The study therefore does not claim that there is something unique about these commodities or the study area, but only that these are novel in specific ways relative to the systems they have been replacing. To the extent that this narrative is unique to neither time nor place, a cumulative understanding of similar experiences offers a way to anticipate the path of agricultural change in other regions.

In the next section, I outline the broader context of agriculture in Tamil Nadu and in the study districts. Following that, I discuss the emergence of these commodity systems, describing the actors involved and how transactions are organised along the supply chain, and go on to elaborate the ways in which they represent a new kind of agricultural transformation. The last section attempts to assess this ongoing change and comment on its future.

2 Agriculture in Tamil Nadu since the 1980s

Tamil Nadu offers an interesting if somewhat uncommon example of a region that has seen substantial structural changes in its economy. It has been characterised by rapid urbanisation, with 48.5% of the population residing in urban areas in 2011, and a rapid decline in the contribution of agriculture to the state gross domestic product (GDP), from 24.57% in the 1980s to 21.85% in the 1990s, to only 11% in the triennium ending (TE) 2008-09 (Government of Tamil Nadu, various years). While this is often associated with a maturing economy, in the case of Tamil Nadu (not unlike India itself), the proportion of the workforce in the agricultural sector has not declined at a similar pace, leaving about half of it still dependent directly or indirectly on agriculture. Productivity in agriculture seems to be levelling off for the major foodgrains and speculation in real estate by urban investors is bidding land away from it. The net sown area as a proportion of all cultivable land shrunk from 68.34% in 1990-91 to just 58.5% in TE 2002-03, before recovering to 63.09% in TE 2007-08. The cropping intensity declined from 1.19 to 1.16, before settling at 1.15 during the corresponding periods (Government of Tamil Nadu, various years). This suggests that the last decade has seen the extent of use of cultivable land shrinking and the proportion of land that is cultivated more than once declining. Coupled with falling groundwater tables in the early 2000s, failed monsoons, and the uncertainty associated with disputes over shared Cauvery River waters, agriculture has been rendered a distinctly unattractive proposition.

3 State Government Policy

Against this background, the Government of Tamil Nadu has tried, in the past decade, to evolve ways to enable agriculture to recover and cope. For instance, it has been pushing for a shift to less water-intensive, high-value crops (floriculture and horticulture), apart from experiments with precision farming and organic agriculture. Agri export zones (AEZs) for cut flowers and mangoes were initiated in the first half of the 2000s. In addition, the government has been proposing the development of horticultural crops through agro-clusters, as part of the National Horticultural Mission. Secondary data for Tamil Nadu suggests that in 2009-10, the area under cereals and pulses was only 77% of the levels in the base year, 1993-94, whereas that under fruits and vegetables was 54% higher than in the base year (Government of Tamil Nadu 2010). There were increases in the acreage under banana, mango, tapioca, onion, cashewnut, arecanut, and turmeric, and a significant shift to coconut in response to water and labour problems. But this trend was already evident when these policies were introduced, and they perhaps accentuated it. There have also been marketing initiatives such as the establishment of dedicated terminal markets and farmers’ markets (uzhavar sandai) to improve the efficiency of supply chains.

While the entire menu of policies is not relevant to this analysis, it is worth noting that Tamil Nadu’s Agricultural Produce Market Committee (APMC) never explicitly forbade or prohibited contract farming, although there has been no special legislation governing contracting farming arrangements. Nor was there any recognition of contract farming in policy documents till a policy note in 2002 that explicitly and officially stated the objective of promoting contract farming across a range of crops in different ways. Cotton was to be produced by private-sector spinning mills backed by a state-owned enterprise (now known as a “tripartite model”), maize and oilseeds through the state-owned National Agricultural Cooperative Marketing Federation of India (NAFED), and oil palm through designated (“licensed”) private-sector firms. Later, in 2005, jatropha and sweet sorghum were to be farmed on similar lines. While some of these were linked to the central government’s interventions in particular crop sub-sectors, others like maize and cotton were, by and large, initiatives at the state level. Among other things, providing an institutional space for agribusinesses within crop sectors was expected to contribute to ensuring better returns for farmers and “de-risking” them. These trends in Tamil Nadu’s agriculture and state policy form the backdrop for discussing agriculture in the study area.

4 Study Area

The districts in the study region are diverse, with varying agro-climatic zones, different levels of socio-economic development, and demographic composition. Much of the study region shares many of the contextual constraints that were described in Section 2. Parts of it have received much attention
from scholars, pertaining to markets, labour and the growth of the garment industry. Given the predominance of rainfed conditions, agriculture here is the product of arduous human labour on lands difficult to work, with open wells for irrigation or electric pumps used to draw groundwater. Some of these districts have had highly commercialised agricultural sectors for more than a century, and have been known for entrepreneur-farmers.

In the late 1950s, Coimbatore distinguished itself as a forerunner in agricultural modernisation in Tamil Nadu, well ahead of the green revolution in the rest of India (Harriss-White 1996; Heyer 2001, 2000). None of the other districts selected for the study have been such examples of agrarian enterprise. In the 1980s and 1990s, a high degree of urbanisation and industrialisation became the defining features of the district (Heyer 2001). Industrialisation in Coimbatore, Erode and Tiruppur has been based on medium to small-scale enterprises that have had high rates of growth since the 1980s (Heyer 2001; Damodaran 2008). This is less true of the southern fringe of the study area, which has not seen as significant a structural change as its northern neighbour.

Nevertheless, all the districts have had a decadal growth rate of rural population that is more negative than the state average, signifying rapid urbanisation. Agricultural labour also appears to have found new avenues of employment in the small-scale and informal sectors in urban areas. The consequent bidding up of wages has posed a problem for cultivators hiring farmhands.

5 Genesis of Contemporary Commodity Complexes

While there is a sense that agriculture is under pressure, it is has apparently not been stripped of its dynamism. The 1990s and 2000s suggest that the sector might be trying to adapt to the demands of a new dynamic. On the demand side, the growth of urbanisation and the region’s proximity to thriving urban centres such as Coimbatore and Bangalore, and net food-importing Kerala, has meant strong demand-led forces that have possibly influenced cropping patterns. Horticultural crops have made definite inroads here, as in the rest of Tamil Nadu.

There has also been a shift to a few non-traditional export crops. The development of specific sets of crop and livestock complexes with strong links to business enterprises, invariably mediated by contract farming arrangements, stands out as an important feature. Salem, for instance, has emerged as a focal point for the seed cotton industry and more recently, along with Namakkal, as a niche zone for medicinal plants. Dindigul is now home to a gherkins complex that evolved in the 1990s, alongside a distinct shift to high-value horticulture and floriculture, aided by the establishment of AEZs that provide infrastructure to agricultural processing firms. Erode has pioneered organic agriculture in the state. Coimbatore hosts some of the largest poultry integrators in the country, driving an expansion in maize for its feeder units, a trend of the past decade.

The five commodities selected for the study — gherkins, marigold, papaya, broiler and cotton — represent examples of these changes. They have different attributes but share features that set them apart from other high-value field crops grown for traditional markets or mandis. First, all share strong links downstream to not only to local industry, but also beyond, to regional, national and global markets. In most cases, the impetus for the emergence of these complexes originated in the global context of international agriculture trade. Second, in many of these commodity complexes, the locus of production decisions rests with downstream players, and the supply chain is built up from the buyers’ end in the form of backward linkages. Third, this implies unprecedented control and influence over production processes and demand-specific modes of transactions such as contract farming, oral or written, to effect such control. In all these examples, the farmer has agency in a very limited sense, even though the economic returns of participation in these supply chains could be quite large. Collectively, these imply a very different configuration of actors along a supply chain than in the mandi-centric system. It is in this sense that the emergence of these commodity complexes represents inflections in agricultural development in the region. The following section describes how each of the commodities emerged in the region and conforms to one or more of the features that constitute departures from pre-existing systems.

Figure 1: Gherkins Exports from India to the Rest of the World (Prepared and Preserved)
5.1 Gherkin

Gherkin is a non-traditional export crop with no domestic market. Having made its entry in 1992, gherkin (a race of the species *cucumis sativus*) is new to the study region, as it is to India. The emergence of a gherkin-processing industry in India is emblematic of global shifts in agricultural sourcing, following a decline in the area under gherkins in Europe. In less than a decade, India moved from the penumbral margins of the world gherkins economy to centre stage, accounting for as much as 15% of world exports during the years 2006-07 (Figure 1, p 86). The major destinations during this time were Russia, the European Union (EU) and the US.

The study area was one of the first to induct gherkins into annual cropping patterns, emerging as a procurement shed in Tamil Nadu. Over time, Karnataka, a later entrant, overtook Tamil Nadu, thanks largely to organised and focused state government support to gherkins export industries. Nevertheless, industry observers estimate that Tamil Nadu accounts for as much as 35% to 40% of India’s gherkins exports. The epicentre for gherkins in Tamil Nadu is the town of Dindigul, located at the heart of the study region, and, to a lesser extent, Tuticorin. At the time of this study, in 2007-08, there were seven gherkin plants clustered around Dindigul town, with easy access to both the hinterland that constitutes the procurement shed and to Tuticorin port, from where export shipments leave. Almost all of them are 100% export-oriented units (EOU), which make them eligible for the benefits of export-promotion policies. The gherkins plants in Dindigul district have varying degrees of technological sophistication and labour intensity, with between 70 and 150 employees on their rolls. If necessary, additional labour is hired on a contractual basis for the season. Women appear to form the bulk of the employees. Gherkin processors coordinate with each other through the Gherkins Exporters’ Association (GEA) and sometimes agree on pricing or trade stocks with each other when needed. While there is not much mutual trust among them, they are cohesive in guarding India’s international image as a reliable gherkins exporter.

The gherkin crop is procured from farmers and processed in small-scale plants, by washing, rinsing and preserving in brine, acetic acid or vinegar, based on client preferences. These are either bottled and labelled for international clients or shipped out in barrels for bottling. The unit value of exports is naturally higher for the latter and at the time of this study, several plants were contemplating greater value addition through bottling and branding. Until recently, the raw materials used in processing, including barrels and vinegar, were imported, but by the late 2000s, barrels began to be manufactured in India. So the gherkins processing industry now uses, by and large, domestically produced inputs. All gherkins are sourced by processing plants through some form of contract farming in the region. The firms have very similar contracts and pay a higher price for small fruits, with five grades of prices based on size. They are also discerning about quality and crooked and damaged gherkins are rejected, between 5% and 8%, according to the farmer survey.

5.2 Papaya

Like gherkin, papaya was introduced in the region in the 1990s for extracting papain, which has wide-ranging industrial uses. Tamil Nadu had never figured on the list of papaya-producing states in India in the 1980s and 1990s. It was neither cultivated nor consumed widely in the region. As recently as 2008-09, Tamil Nadu accounted for only 0.43% of India’s area under papaya and 2.2% of the total production (Government of India 2010). Yet, papaya cultivation for papain extraction was almost exclusive to Tamil Nadu. Traditionally, papaya was common as a backyard tree or an intercrop. It was in this setting that the contracting firm in the study established a papain extraction plant, and persuaded farmers to take up papaya (the Co2 variety) as a contract crop. The owner of the plant started as a struggling dryland farmer in the region and worked his way up to setting up a modest-sized plant in the late 1980s. He started trials in 1989, establishing operations on a commercial scale in 1994. Other firms unsuccessfully attempted operations in the late 1990s.
The number of firms worldwide involved in primary purchase of papain is very small and all have their traditional sources of supply. Most of the exporting countries are in Africa, with Democratic Republic of Congo being the largest supplier. Many importing countries further process their papain imports and re-export to one another or reprocess it for sale to fit end-user specifications. Partly on account of the limited number of suppliers, most of the international trade in papain is based on contracts that span the years covering the life of the tree. Most exporters of papain first obtain contracts for supply in the following year before organising supply or undertaking planting on farmers’ fields. Since latex extraction requires a gestation period before the papaya trees begin to fruit, the matching of demand with planting is not exact. Contracts also carry specifications on the quality of papain, which is related to the level of papain enzyme activity, measured in thyrosine units (ru). Contracting firm have to ensure these are complied with.

5.3 Marigold

Marigold was introduced to the study area on a commercial scale from Mexico in the early 1990s by three firms to support their factories that extracted oleoresin for export. Oleoresin has three main uses – as a colouring agent in food, and as an additive in poultry feed and nutraceuticals. The potential for its increased use in the latter segment is high as studies in recent years have recommended intake of lutein to protect against cataracts and macular degeneration, two common age-related eye disorders. Most of the oleoresin produced by the three plants is exported to the us, eu and Mexico. According to industry executives, India accounts for about 25% of world marigold oleoresin exports, with China producing about 50%. Peru is the other important exporter in what is deemed to be a Rs 300 crore market.

Marigold demands specific agro-climatic conditions, with cooler climates producing optimal yields. In Tamil Nadu, it is confined to elevated, hilly regions or cooler foothills on the northern edge of the study region. Until marigold’s introduction to the area, it was never a popular flower for cultivation. In Tamil Nadu, its ceremonial uses were restricted to funerals. In the study region, at least three large cotton mills had already begun integrating vertically in the 1990s, covering operations starting with ginning to finishing garments for export (Damodaran 2008). Partly because of varietal issues and the local supply deficit, most Tamil Nadu mills source cotton from other regions. Most mills, however, spin a wide range of cloth qualities and there is always demand for good-quality local cotton that is free from contamination. Contract farming as a strategy was expected to substantially serve this need. In the study region, at least three large cotton mills began to engage in contract farming around 2002.

5.5 Broiler

In broiler, the integration process began in the mid-1980s in the south, but failed to take off when large numbers of small and medium farmers stopped producing chicken products. The layer industry also took a hit from an eu ban on egg and egg products from India. Firms, both local and those based in the north, restarted contract growing in the mid-1990s, drawing on the services of some of these experienced farmers, utilising pre-existing infrastructure such as sheds, drinkers and feeders. In the southern and western parts of India (Karnataka, Tamil Nadu, Andhra Pradesh and Maharashtra), large-scale vertical coordination has been occurring at a brisk pace ever
since, especially in broiler production, and poultry has emerged as one of the fastest growing sectors in agriculture (Figures 3 and 4). In the south, particularly around the Palladam area of Tamil Nadu, integrators now reportedly account for over 96% of the production in layers and 90% in broilers, the major players being Venkateswara, Suguna and Swathi. A number of small firms also operate in this sector alongside these large players.

Day-old chicks are provided by the firms and bought back at a pre-agreed rate per kilogram of weight gain, with an incentive for reducing mortality or improving feed conversion rates beyond the norm. Firms provide feed, vaccines and most other inputs and contracts are remarkably similar across them. Most firms function as middlemen, as aggregator-intermediaries, selling produce downstream to retail vendors. A few have their own brand of chicken in various processed forms. In general, integrators have tended to establish wholesale and retail price leadership in the markets where they operate by reducing the number of intermediaries or by selling directly through their own retail outlets (for example, in Coimbatore). In the broiler sector, there is no national organisation that looks after the producers’ interests. Barring a few regional organisations, broiler marketing is largely in the hands of big traders and commission agents. In the study area, the broiler coordination committee, based in Palladam, is a strong organisation of broiler integrators who set the price and control the volume of supply to maintain prices in their favour. There is no comparable farmers’ organisation. In the study area, apart from the three big integrators, several small- and medium-scale firms contract for broilers. While most of the country’s large integrators operate here, there have been a few instances of firms going bankrupt in the late 2000s.

6 The Commodities, Markets and Contracts

6.1 Snapshot of Commodity Complexes

The nature of firms operating in these sectors is variegated. Some are family-owned private limited companies, foreign and domestic; others are sole proprietors and partnerships. In the case of marigold, cotton and broiler, the contracting firms are limbs of conglomerates and have been active in the region for a long time. On the other hand, the gherkins firms comprise foreign-owned ones and new entrepreneurs who have no prior experience in agribusiness. The scale of operations varies widely. Gherkins, marigold and broiler are extensive, covering thousands of acres and farmers. The cotton mills tend to operate on a small scale and in a contained area, and the papain extraction plant focuses on about 100-300 farmers at a time, who are scattered across three districts. Papaya, marigold and gherkins are tied to place, in the sense that factories are present in the area. For cotton and broiler, this is not the case.

Of the five commodities, papaya and gherkins are highly perishable. Since marigold is used for crushing, perishability is not an issue. Broilers are not perishable but timely buy-back is important from the perspective of profitability. Cotton can be stored and in this respect differs from the other commodities. Virtually all the commodities have contested markets, though the nature of competition among buyers is different. Other processors compete for gherkin procurement; for marigold, the domestic market for fresh flowers and the oleoresin manufacturers offer competition in two different forms. Cotton and broiler contracting are defined against vibrant alternative markets. Only the papaya firms are in a monopsony but the complex contract also pays for the lacerated fruit from which latex has been extracted and cannot be marketed as such. Contracts within each commodity complex tend to be similar, but vary across commodities. Almost all schemes involve the provision of inputs on credit, although at the time of the survey, no firm was engaged in supporting farmers in accessing credit from commercial banks. This appeared to a conscious decision on their part.

Contract pricing differed from prices fixed at the time of sowing to a price pegged to local markets (in cotton). In broiler, an incentive was provided if the bird-weight was above the recommended norm at the time of buy-back, for marigold, a premium was paid to those who delivered greater volumes to dissuade farmers from diverting to the open market. The parameters of quality were most transparent and rigorous in papain, for which a Brix meter is used in the presence of farmers and the price is linked to this measure. For gherkins, the quality...
and price were linked through size, with smaller gherkins attracting a higher price and the crooked and rotten produce weeded out. For cotton, the measure of quality was not only in terms of staple length, but also in terms of the presence of impurities, such as soil and human hair.

While there were written contracts in principle, in practice, many farmers said their contracts with firms were oral. Though contracts were typically with an individual farmer, in some cases, especially in cotton, sometimes a lead farmer had a contract, but identified other farmers who would supply to the firm on the same contractual conditions. It is not unusual for firms that operate on a large scale to use multiple sources of procurement. For example, the gherkins and marigold firms are procured not only through contract farming, but also through agents or vendors who secured produce for them on a commission. These agents can be regarded as “new” kinds of intermediaries, usually young and armed with a diploma or degree in agriculture so that they can provide extension services on behalf of firms. They are also mobile and tend to travel to fields routinely, monitoring production and enforcement. It is not unusual for an agent to have multiple firms as clients, though there are some agents, especially for marigold, who work exclusively for one firm. Many of the firms also had their own farms from where they sourced material, which smoothened procurement over seasons and minimised the risk of non-availability of raw material.

6.2 Relationship Intensity and Control over Production Processes

Virtually all the contract commodities involve production processes that require farmers to respond continuously to the need to maintain quality. These quality standards are often established outside the production system, driven by end-user preferences. In gherkins, food safety concerns in importing countries mean stringent norms on the use of inputs, fertilisers and pesticides. The latter need to be on the “approved” list of the importing country. The firms typically provide these inputs to ensure that these conditions are met. In cotton, quality is the need for extra long staple (ELS) cotton that is not contaminated, that is, free from impurities and particulate matter. In the case of papaya and marigold, while the varietal choice is more critical than the production process, good cultivation practices and care during harvesting (for papaya) are required to ensure high yield. This control over production processes extends to the varieties of the crop used. In papaya, whereas Red Lady was the dominant variety, appropriate for table consumption, the firm prefers the Co2 variety that has higher papain content. This is appropriate, but not ideal, for table consumption. In marigold, the seeds supplied are imported and distributed at subsidised prices, with one firm indicating that a Peruvian variety is suited most for its higher oleoresin content.

Firms engaged in contract farming thus engage actively in the production process or intensity of the contractual relationship. A cotton firm brings in a third-party input manufacturer to monitor and advise farmers, providing materials to store the harvested cotton, and initially even arranging for credit from a bank. The mill’s role is confined to coordination and oversight of operations. A gherkins firm provides farm inputs (seeds, fertilisers and pesticides) on credit; this is later recovered from the farmers at the time of harvest. Field officers on the company’s rolls monitor crop health and advise farmers periodically. Broiler contracting involves a high relationship intensity with firms’ officials visiting contract growers everyday to monitor the health and status of the birds. These firms provide day-old chicks to the farm and have detailed protocols for quality control, ranging from the feed mix to vaccination schedules. In essence, apart from labour and an initial capital investment, the farmer has a limited role in day-to-day decision-making.

For papaya, the involvement of the firm varies over the life cycle of the crop. In the nursery stage, field officials monitor the crop closely with daily visits. Once plants mature into the flowering stage, there is limited oversight, unless the situation demands it. An interesting feature is that the labour for latex extraction is organised and trained by the firm, with the wages paid by the farmer. Latex extraction requires great skill and the firm believes it can ensure quality and an adequate supply of latex for the plant by deputing labour to contract farms. Marigold represents the least participation of firms in the production process, related partly to fewer quality requirements that need only modest supervision. A marigold firm said that monitoring was required more for contract enforcement than for production. It thus restricts its interventions to providing high-quality seeds at subsidised prices and training new contract farmers in the cultivation of marigold. Its field officials advise farmers periodically on pest and disease control.

6.3 Geographies of Procurement and Farmer Participation

All the five commodities have been able to make inroads into cropping patterns by fitting themselves into very specific geographies and by offering farmers attractive alternatives to the options they had. As one field officer put it, their approach to selection of tracts to procure from is one where they “attack the weakness”, implying that these commodities offered something that enabled farmers to work within their constraints or to capitalise on their resources. For example, poultry expansion has taken place in areas where water and labour are constraints, papaya, where irrigation is available but labour is a problem, and gherkins where family labour is abundant. Cotton is confined to the areas with black cotton soils, the traditional cotton-growing region, and marigold is mainly in the hills or foothills, where it fits neatly into the cropping cycle.

Firms tend to be selective in picking farmers with whom to contract and the development of these commodity complexes has not been even across space or people. Papaya and broiler contracting is with larger farmers, while gherkins, marigold and cotton tend to be with smaller farmers. The latter follow a cluster approach, selecting clusters rather than individual
farmers. For papaya and broiler, farmers are identified mainly through personal contact, perhaps because of the larger investments required. The oleoresin and marigold factories are close to the area where the prospects of production are the highest. In the case of gherkin, which is highly perishable, contract suppliers are chosen close to the plant. In general, papaya and broiler farmers are likely to be among the wealthier in the contract villages and better educated, whereas the opposite is true of cotton contract farms. This reflects the large investments required upfront for broiler sheds and plantations, which pose entry barriers for less wealthy farmers. Broiler contract farmers tend to have less access to irrigation, but the opposite is true for the other commodities. Gherkins are a highly labour-intensive crop and firms tend to operate in regions where family labour is available and alternative labour market opportunities are limited, which tend to be the relatively backward areas in the study region. The strategies that firms adopt to choose both regions and farmers are tailored to the particular demands of growing and processing the commodity, so the biases of firms in choosing farmers are different across commodity complexes.

7 Impacts and Challenges to Sustainability

It appears that papaya and broiler, and to a lesser extent, gherkins have been particularly lucrative for many farmers. In marigold and cotton, the experience of contracting farmers has been variable both over time and across firms (see Narayan 2012a for a detailed discussion). At the same time, farmers associate contract farming arrangements for high-value produce with different kinds of risks. Some of these are a product of perceptions (such as the fear of losing land, even when contracts do not contain such a clause) and others come from their experience with contracting (such as the fear that the firm might renege on contracts), or the environmental consequences of contract cultivation.

Collectively, on an operational level, these render the transactional interface between farmer and agribusiness a highly contested space and the sustainability of operations for firms hinges on their ability to maintain carefully built relationships. Farmer agency in these settings takes very specific forms. Farmers generally do not have devices to safeguard against dubious operators. In the study region, there have been only a few instances of this and in the gherkins sector a firm became bankrupt and owed farmers payments for a whole season. In all other commodities, the contracting was with divisions of established and reputed agribusiness or those that had invested considerable effort in building trust. A farmer’s power in the firm-farmer relationship comes from alternatives that might be available, specifically the clustering of multiple firms in the same region without effective collusion. Where domestic markets for a commodity exist, farmers’ ability to side-sell endows them with considerable power. The possibility of growing a lucrative cash crop for the traditional market (such as tomato or turmeric) also empowers the farmer, especially when firms seek to source intensively from a small geographic area.

7.1 Problem of Enforcement

In a context of weak mechanisms for public contract enforcement through the courts, firms have had to work hard to ensure that farmers honour their contracts. In general, the greater the interdependence between farm and firm, the greater are the chances that a contracting arrangement endures. The commodities chosen for the study occupy different positions on a scale of interdependence. Papaya comes close to a symbiotic relationship. Committing to a contract is necessarily a two-three year lock-in, with limited options outside. In the case of marigold and cotton, however, the contract farming scheme is embedded in an already existing crop complex that readily accommodates side-selling by farmers. For cotton, contract cultivation methods are not very different from cultivation for the spot market. Both farmer and firm can resort to spot market trade at any time. Even in this case, however, the varietal differences imply thatELS cotton commands a premium that would prima facie differentiate the contract crop from local varieties of cotton farmers might grow.

The cotton firm selected for study has its own research division that works with crop varieties and develops its own hybrids. During the time of study, the variety contract farmers grew was a hybrid developed by the firm. Despite this, farmers disgruntled over price and quality issues side-sell to their customary traders. This has posed difficulties for the firm and the year in which the farmer survey was conducted marked the last season it contracted for conventional cotton. The company was proposing to explore contract farming in organic cotton at that time. “Contract farming for conventional cotton is a complete flop”, said an executive.

The stated official estimate of area under cotton contract farming in Tamil Nadu for 2005-06 was 45,000 acres (Government of Tamil Nadu, Policy Notes), but a closer look reveals that this figure is an expression of intent rather than accomplishment. Based on personal interviews with all the contracting firms, it appears that the actual extent of contract farming in cotton in Tamil Nadu fell well short of what was originally proposed, and was no more than a few thousand acres at its peak. In the years since, contract farming in conventional cotton appears to have waned and then retreated. The most recent document of the Government of Tamil Nadu articulating its agricultural policy has no reference at all to contract farming in cotton. By the end of 2008, most mills saw contracting as a corporate social responsibility initiative and the responsibility of contract farming operations lay with divisions within the firms that had little to do with its main procurement operations. At the time of the survey, there was a concerted effort by some mills to promote contract farming of organic cotton, rather than conventional or Bt cotton, which they felt was much too risky and not worth the effort. Organic cotton, they believed, would differentiate adequately from traditional cotton to enable contractual relationships.

In gherkins, the moral obligation to sell to the contracting firm seems high. As is often the case with export crops, there is no alternative market for gherkins in India. However, over the years, the number of gherkin processors has increased and
intense competition between the firms ensures that there are credible alternatives for the farmer even without domestic markets. In general, firms that have been operating in the region for long do not “cross-purchase” or poach other firms’ suppliers. However, newer firms and those from another region sometimes do. Interviews suggest that this happens only in isolated circumstances and only with some “deviant farmers”. As an executive explained, “That is why there are field officers, they keep a very close tab and if the character is not good enough, we remove them from our suppliers list”. Most firms have now begun to utilised the services of vendors and agents to manage these relationships, especially when their scale of operations grows.

For broiler, there is tight oversight by firms. Although there are competing firms, they tend to respect each other’s turf and farmer loyalty to firms tends to be high. In general, although relationship intensity is primarily to ensure that quality norms are achieved, they often contribute to improved contractual performance in terms of restricting side-selling. The marigold firms had stable contracting relations with farmers in the early years. More recently, with contracting defined against a strong alternative domestic market, the firms have faced serious challenges in enforcing contracts. That the marigold growing season coincides with key festivals in the study region implies the prices for fresh flowers increases at these times to several times the contract price, tempting farmers to breach. Given weak enforcement of contracts and that the firms contract with a large number of small farmers, they have struggled to maintain contracting arrangements, with at least one firm contemplating moving some of their operations to China and Ethiopia.

7.2 Consequences for On-Farm Production Conditions

Enforcement is not the only challenge firms face. Sometimes, relationships between farms and firms come under great strain when there is a yield loss triggered by catastrophic risk (Narayanan 2012c). For instance, a mealy bug infestation in papaya throughout the region left farmers disillusioned with contracting for papaya. When gherkin is grown repeatedly on a plot, without rotation, the yields taper off or decline because of soil nutrient depletion. Firms often move on to another region to procure. In marigold, nematode infestation poses problems after repeated seasons of cultivation. The more diligent field officers of contracting firms are careful to advise farmers on appropriate steps to prevent these outcomes. Many firms ask farmers not to expose themselves to too much risk by bringing their entire land under the contract crop. Further, they typically advise farmers not to replace food crops. Firms also often go to great lengths in shouldering financial losses to maintain the relationship. Despite these efforts, catastrophic risks can undermine carefully built relationships.

Interestingly, notwithstanding the decade-long presence of these commodity complexes, some of these commodities continue to be exotic. Gherkins are referred to as visha vellri (poison cucumber) on account of the high inputs used; few farmers have even ventured to taste them. The adoption of gherkins did not happen overnight. Firms arranged factory visits to acquaint farmers with the products, and several farmers waited six or seven years before switching to it. Some farmers continue to perceive high risks in production, and also have concerns regarding declining soil fertility and human health because of high input use. This forces firms to expand coverage and balance strategies for expansion in procurement on
the extensive margin (the inclusion of more contract suppliers) and intensive margin (procuring more from the same set of farmers). Along with the need to constantly maintain farmer relationships, this imposes severe challenges on firms that want to scale up their operations.

The oleoresin extraction companies have had to contend with other problems as well. In 2003, protests from local villagers against the contamination of water forced one firm to shut down and relocate to another district, farther from the procurement shed. According to the management of these firms, they have had to invest in expensive pollution control measures.

7.3 Downstream Market Risks

Most importantly, processors who focus on export markets face the pressure of keeping costs of procurement low in the face of global competition. The global nature of the system implies that fluctuations downstream in international markets, either in the nature of shrinking demand because of economic slowdowns or a good crop elsewhere, or the emergence of new global procurement sheds have impacts upstream. This uncertainty is a source of perpetual stress for firm-farm relationships. A small number of importing and exporting companies working with traditional suppliers make for very thin oleoresin and papain markets, with large inter-year fluctuations in volume traded as well as volatile prices (Figure 5 and 6, p 92). Firms face fluctuating fortunes. In the period 2004-06, all three firms in the region expanded marigold procurement considerably and were contracting for produce across extensive swathes of land in the northern fringe of the study area. Since then, the firms have had difficulties managing the scale of operations, mainly because of fewer international orders. Two of the three temporarily stopped operations until 2009 and at the time of the field survey, only one firm was contracting for marigold. The thin papain market renders international papain prices highly volatile, depending on the supply conditions in exporting countries, especially in Africa. Figure 6 shows the trend in exports and unit value of exports since 1997-98. It is evident that although papain exports have been growing, there is some volatility in the volume of exports, which in turn has an impact on procurement volumes from farmers.

The gherkins complex is a mature sector, but faces continuous challenges. The main difficulties pertain to their predicament as an intermediary between Indian farmers and international clients. Competition upstream for sourcing from farmers means they need to offer prices to match others in the industry, especially in a context where collusion on prices or coordination within the GAE is not reliable. Also, there is pressure on firms to compensate farmers better to keep pace with rising prices and wages, even as they compete for cheaper sources of produce. At the other end, the international market for gherkins is sensitive to general economic conditions and is searching for the cheapest source of produce across countries. This downward pressure on the selling price of gherkins leaves a few of the gherkins processors with wafer-thin margins.

Notes

1 For examples of these viewpoints, see Reddy and Mishra (2009), Patnaik (2003), Joshi and Gulati (2003), Reardon and Gulati (2008), Gulati et al (2009).
2 Tiruppur district was formed in October 2008, merging 13 contiguous blocks that belonged to Coimbatore and Erode districts.
4 Cropping intensity is the average number of times per year a unit net sown area is utilised.
5 Of 285 blocks, 288 are categorised as either dark or grey (Agriculture Department Policy Note 2006-2007, Demand No 5, Government of Tamil Nadu).
6 Like elsewhere in India, holdings have become smaller over time and the proportion of smallholders among all cultivators has increased in the decades since Independence. In 2005-06, 91.3% of landholdings was less than two hectares and accounted for...
17 At least one firm reported that when loans were waived in 2008 as part of a government policy to provide relief to indebted farmers, contract farmers were a disgruntled lot since, according to their contracts, the payments for their produce were automatically adjusted for loan repayments. While they could not cash in on the loan waiver benefits, both non-contract farmers and those who contracted but side-sold the crop did. According to an executive, this did great damage to the contracting mill’s relationship with farmers.

18 In relative terms, it is important to note that the farm-gate price is about half the unit export price and was only 3% of the retail consumer price and was only 3% of the retail consumer price. The latter is computed as the export value multiplied by hundred, and the retail price of gherkins in the EU, obtained through personal communication. The question of distribution of value across the supply chain relationship with farmers.

19 Narayanan (2012b) discusses the “moral” economy of contractual relationships.

20 Once the latex has been extracted, the fruit does not fetch remunerative prices because of the lacrations on the skin. The firm buys back the fruit, which is used to make canned fruit or puree.

21 Farmers were given a choice of five types they could grow. In the year of the survey, the farmers were all growing the same variety.

22 These are available at http://www.tn.gov.in/policynotes/default.htm

23 This area is only a small portion of the volume of procurement, with a majority coming from the neighbouring state of Karnataka, from across the state border.

REFERENCES


East India Cotton Association (various years): Indian Cotton Annual, East India Cotton Association, Bombay.


Government of Tamil Nadu (various years): Season and Crop Report of Tamil Nadu, Department of Statistics, Government of Tamil Nadu, Chennai.


