Journal of Pharmacognosy and Phytochemistry
Available online at www.phytojournal.com

E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2017; SP1: 111-114

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Terms of contractin hybrid rice seed production in Telangana: A case of surrogacy system

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Abstract
The climatic conditions of Telangana state are suitable for the hybrid rice seed production and the state is known it. Many small and marginal farmers in the state are engaged in hybrid rice seed production under contractual agreement, which vary from company to company and from farmer to farmer. Present investigation was undertaken to study the terms of contract; and to rank the constraints faced by farmers. The data on different aspects pertaining to the year 2014-15 was collected from 90 farmers. The crucial inputs and services for seed production were supplied by the seed companies to the farmers at pre-agreed/prevailing prices or free of charge and most of the terms and conditions specified in the agreement were fulfilled by the seed companies and farmers, baring few exceptions. For development of the crop the deficiencies need to be plugged by all-round efforts by scientists, farmers, extension agencies, government, NGOs, etc.

Keywords: Hybrid rice, seed production, contract farming

1. Introduction
The climatic conditions of Telangana state are suitable for ybrid rice seed production and thestate is known for hybrid rice seed production. The importance of the state for hybrid rice seed production can be judged from the fact that morethan 80% of hybrid rice seed in the country is produced in Karimnagar, Warangal, and Nizamabad districts of the state. Though, hybrid rice seed production is a lucrative proposition for entrepreneurial farmers, but it is highly technical in nature, requires specific skills for supplementary pollination, rouging, leaf clipping, etc. The production of hybrid rice seed needs female and male parent line seeds and plant growth regulator Gibberellic Acid, which is unavailable in the local markets and is highly expensive. On one hand, farmers, in general, do not have technical skills and access to required resources to buy expensive inputs, therefore unable to undertake hybrid rice seed production on their own. On the other hand, the seed firms with technically trained human resource and financial resources have shown their interest for a partnership for hybrid rice seed production. Many entrepreneurial farmers have joined hand with seed firms to undertake seed production.

For the commercial viability of hybrid rice, developing an efficient and economical seed production method is a prerequisite (Siddiq and Ahmed 1998) [5]. Hybrid rice seed production is being done at a large scale by many private sector companies through small and marginal farmers under contractual agreement. Many small and marginal farmers areengaged in hybrid rice seed production under contractual agreement, who consider that seed production under contractual system offers benefits for them, such as, the seed production is more remunerative than their conventional crops on account of assured and premium price received for their produce; they are freed from their worries of input and fund arrangements, as many of their input requirements are fulfilled by the contract firms through credit financing, they acquire the required technical skills under the supervision of trained staff of contract firm. Hybrid rice seed production is a labour intensive proposition generates additional employment, particularly for women (Janaiah *et al.* 1998) [3].

In this surrogacy system of seed production the seed companies and the farmers mutually depend on each other; farmers depend on seed companies for technical skills, parent line seed, Gibberallic acid, and funds, etc.; seed companies in turn depend on farmers for assured quantity seed supply of assured quality at agreed price.

This partnership of mutual dependence is flouringin the areas wherever it is being practiced with honesty and transparency. The seed production under contract farming is being done under varying terms and conditions of contract, which vary from company to company and from one farmer to farmer; such as some companies supply inputs on credit to the contract farmers.

Some contract firms impart training to the farmers on special skills; render technical advice on different crop operations along with an agreement to buy the crop produce of pre-agreed quality, in pre-agreed quantity and at pre-agreed or at going price, while some others contract to buy the seed of pre-agreed quality, in pre-agreed quantity, at pre-agreed price without any commitment to supply inputs (except, parent line seeds and Gibberallic acid), imparting training and rendering any technical advice.

Materials and Methods

The study was conducted in most important hybrid rice seed producing state Telangana. To collect data from the farmersfour stage sampling design was employed.In the first stage Karimnagar district was selected purposively, as it occupies highest area under hybrid rice seed production and produces the largest quantity of seed. In the second stage out of total57 mandals in the district six mandals, viz. Sultanabad, Jammikunta, Venuvanka, Kaluvasrirampur, Manakundur and Huzurabad, having highest area under hybrid rice seed production, were selected; in the third stage one village from each selected mandal was selected randomly. And finally from each selected village 15 farmers were selected randomly. The data on different aspects pertaining to the year 2014-15 was collected from 90 farmerson pre-tested survey schedule through personal interview.

In order to achieve first objective simple descriptive analysis was done, using averages, percentages, frequencies, etc. The variables like introduction of farmer to the crop, type of agreement, frequency of field visits by field officers of the company, number of installments ofcredit payment made to the farmers; and duration of time for settlement and final payment from the date of harvesting, supply of seed material, Gibberellic acid, credit facility, fixation of procurement price,pre-agreed between firms and farmer or at prevailing market price of seed, etc. were subjected for descriptive analysis.

Results and discussion

Hybrid rice seed production under contract farming

The contract farming mean carrying out agricultural production according to an agreement between a buyer and farmers, which establishes conditions for the production and marketing of a farm product(s). Typically, in contract farming the farmer agrees to provide agreed quantities of a specific agricultural product. This should meet the quality standards of the purchaser and be supplied at the time determined by the purchaser. In turn, the buyer commits to purchase the product and, in some cases, to support production through, for example, the supply of farm inputs, land preparation and the provision of technical advice. Telangana is seed bowl of India, where more than 80% of the hybrid rice seed is produced in Karimnagar, Warangal, and Nizamabad districts of the state under contract farming. The prerequisite for hybrid seed production under contract farming is to locate the potential farmers who are willing to undertake seed production under contract by a seed company. The seed company before executing contract assesses the abilities of potential farmer on the criteria set for the purpose. The company generally assesses the abilities of the farmer considering the location and size of farm, sources of irrigation, transportation facilities available, willingness, commitment and experience of farmer in seed production, etc. Having satisfied with the abilities of the farmer the seed company offers a contract agreement, containing various terms and conditions, to be signed by the farmer and the company. Thesatisfied with the terms and conditions of contract, farmer gives his consent to participate by signing the agreement. The terms and conditions laid generally specify the following

- **Specification of type and tenure of agreement:** The contract specifies that agreement between farmers and firmwill be a written or oral, and how long the contract will remain effective. In general the contract remains effectiveuntil crop harvest and get automatically terminate after delivery of produced seed and payment of seed will be made thereafter.

- **Specification of area to be put for seed production and quantity of seed to be supplied:** In view of the abilities of the farmer the area is decided by the company. The quantity of seed to be produced is specified on the basis of area to be put and average yield of crop, with some flexibility.

- **Specification of variety of seed:** The term of contract also specifies the variety to be grown.The farmer's agreed area is considered as one plot for this purpose and only one variety has to be grown.

- **Specification of supply of inputs:** It is specified that the required quantity of seed of parental lines, will be supplied on the basis of area of seed plot on credit basis,with a provision that charges of which are deductible from the sale proceed at the time of final payment by the company. It is also specified that Gibberellic acid (GA_3), without which the production of hybrid rice seed is almost impossible, it will be supplied by company at pre-agreed rate or free of cost. Few companies may also specify that they willsupplyother inputs like, fertilizers, plant protection chemicals to farmers either at market price or free of cost.

- **Specification of provision of credit:** The contract specifies the number of installments and amount of credit which can be extended to the farmer to cultivate seed and to meet hispersonalneeds with or without interest.

- **Specification of provision of extension services and technical guidance:** The contract firm may agree with clear specification to provide technical guidance/training to the farmer on specific crop operations, such as nursery preparation/sowing, weeding, rouging, supplementary pollination, etc.within the stipulated time period /interval during the crop season through its technical staff.

- **Specification of provision oftransportation and assembling of produce:** The contract firm specifies that farmer will have to transport the seed from field to the collection centre decided by the firm or not.

- **Specification of commitment of firm to procure the seed**: The firm also specifies that the firm would procure produce from farmer at pre-agreed price or at going price.

- **Specification of payment of sell proceeds:** The firm specifies that the payment of the sale proceeds will be made in single or multiple instalment(s) after adjusting the amount to be given as advance to or the value of inputs supplied on credit.

Terms of contract and modus operandi in hybrid rice production

The terms and conditions of agreement between farmers and the seed companiesfor hybrid rice seed productionunder contract faming in Telangana state, have been presented in table 1.

Analysis of the table indicates that the agreement between farmers and seed companies was of written type, all farmers executed a written agreement with ten oddseed companies. It was also observed that the tenure of agreement remained valid until the harvest of crop and delivery of produce. The area allotted for seed production was based on farmer's capacity and previous year's crop performance. The company and farmers by their mutual consent decided the area to put for seed production and quantity of seed to be produced.

It is observed from Table 1 that out of total 90 farmers surveyed the quota of 23 (25.56%) farmers was of less than one ha of land less than 20 quintals seed to be supplied, while the average quota for seed production of remaining 67 (74.44%) farmers was more than one ha, and average quantity of seed to be supplied was more than 20 quintals per farmer.

Table 1: Mode of operation in hybrid rice seed production under contract farming

S. No.	Particulars	Frequency (%)
1	The type and tenure of agreement	
a.	Written	90 (100.00)
b.	Oral	-
2.	Specification of area and Quota	
a.	Area	
i.	Less than 1 hectare	23 (25.56)
ii.	Greater than 1 hectare	67 (74.44)
B	Quota	
i.	Less than 20 quintals	23 (25.56)
ii.	Greater than 20 quintals	67 (74.44)
3.	Specification of variety of seed	
a.	HR 3	6 (6.66)
b.	HR 64	12(13.33)
c.	HS 6	18(20.00)
d.	HR 52	8(8.88)
e.	HV70	22(24.44)
f.	HN 44	10(11.11)
g.	HN 66	14(15.55)
4	Specification ofprovisions of supply of inputs	
a.	Parental seed lines (female line, male line)	
i.	Free of cost	12(13.33)
ii.	Market price	78 (86.66)
b.	Fertilizer	
i.	Market price	22 (24.44)
ii.	Not provided by company	68 (75.55)
c.	Gibberellic acid (GA_3)	
i.	Free of cost	36(40.00)
ii.	Market price	54(60.00)
5.	Provision of credit	
a.	Yes	72(80.00)
b.	No	18(20.00)
6	Specification ofprovision of extension services and technical guidance	
a.	Field visit by technical officers	
i.	Once in weekly	56(62.22)
ii.	Twice in weekly	34(37.77)
b.	Providing extension services	
i.	Monthly	41(45.55)
ii.	Bimonthly	29(32.22)
iii.	Quarterly	20(22.22)
7	Specification ofprovision oftransportation and assembling of produce to farmer	
a.	Yes	-
b.	No	90(100.00)
8	Specification ofprovisionfor procurement of seed	
a.	At pre- agreed price	72(80.00)
b.	At market price	18(20.00)
9	Specification ofprovision forpayment of sell proceeds after harvest	
i.	Immediately after harvest	38(42.22)
ii.	after 15 days of harvest	25(27.77)
iii.	15-45 days after harvest	17(18.88)
iv.	45 days after harvest	10(11.11)

The firm supplied seed of parental lines to farmers to be sown and the charges towards the same were deductable from sale proceeds at the time of final payment. It is also clear from the table that all the farmers were given seed of parental lines by the respective contract seed companies to sow in agreed plot by the farmers. As per the specification of terms about

variety, it was observed that parent line seed of HV-70 hybrid was supplied to 22 (24.44%) farmers, followed by 18 (20.00%) farmers who were supplied seed of parent line of HS-6. While the parent line seed of HR-3 hybrid was supplied only to 6 (6.66%) farmers. Further, among the seed growers, it was observed 12 (13.33%) farmers were given seed free of cost by the respective companies, while remaining 78 (86.66%) farmers were given seed materials on credit basis at agree prices. Other inputs like fertilizers were supplied to 22 (24.44%) farmers at market rate and the remaining 68 (75.55%) farmers purchased the same from the market.

One of the most important inputs for hybrid rice seed production, the Gibberellic acid, without which hybrid rice seed production is almost impossible, was suppliedto all seed growers by the companies; out of these 40% (36) farmers were supplied Gibberellic acid free of cost, while 60% (54) farmers were supplied the same on credit basis at market price. Further, it was observed that no company supplied the plant protection chemicals to the farmers. It was observed that most of the farmers (80.00%) were given credit facility by contract firm, while remaining 20.00 farmers arranged the needed funds on their own.

In order to enable farmers to perform the required operations in seed crop, companies provide extension service and training to the farmers under contract and specify the same in the terms and conditions of contract. It is also clear from the table that 62.22% (56) farmers reported that company staff and technical experts visited their field weekly to render the technical guidance while 34 (37.77%) farmers reported that they received technical guidance from company staff, twice a week. Further, 45.55% farmers received extension service from company once in a month, while 32.22% and 22.22% farmers received the extension services bimonthly and quarterly, respectively. It was also observed that no company provided transportation facility to farmers to transport the produce from their fields to local seed collection center, decided by company located in the centre of seed growing villages.

An important aspect in hybrid rice seed production contract is the specification of conditions for procurement of produced seed by seed company. Table 1 indicates that the produced seed of 80% (72) famers was procured by the seed companies at pre-agreed prices, while the seed of remaining 20% (18) farmers was procured by their contract seed companies at price determined after harvest of crop.

As the contract agreement specifies the time duration for payment of sale proceed of seed supplied by the growers. A look on the table reveals that payment of sale proceed to more 42.22% (38) farmers wasmade immediately after harvest of crop and supply of seed, while 27.77% (25), 18.88% (17) and 11.11% (10) farmers got payment within 15 days, between 15 and 45 day; and beyond 45 days of seed supply, respectively. It was also observed that the seedcompanies provide incentive to those farmers who achieve higher yield in hybrid rice seed production by paying bonus at rate of Rs.150-200 for quintal.

It can be concluded that theneeded inputs and services for hybrid rice seed production, such as parent line seeds, Gibberallic acid, training were supplied by the contract seed companies to the farmers either at pre-agreed or at prevailing prices or free of charge and most of the terms and conditions specified in the agreement for hybrid rice seed production, baring few exceptions, were fulfilled by the seed companies and farmers.

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