



SOILED SEEDS

**CHILD LABOUR AND UNDERPAYMENT OF WOMEN
IN VEGETABLE SEED PRODUCTION IN INDIA**

*Davuluri Venkateswarlu
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INDIA COMMITTEE OF THE NETHERLANDS (ICN)

MEMBER OF THE STOP CHILD LABOUR COALITION

STOP



CHILD LABOUR

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COLOPHON

Author: Dr. Davuluri Venkateswarlu, Director Glocal Research, Hyderabad, davuluri_v@yahoo.com

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India Committee of the Netherlands

(Landelijke India Werkgroep)

Mariaplaats 4^e, 3511 LH Utrecht, Netherlands

Tel: +31 (0)30 2321340

E-mail: g.oonk@indianet.nl

Website: www.indianet.nl



Stop Child Labour

Website: www.stopchildlabour.eu

About the Authors and Publishers

The India Committee of the Netherlands

The India Committee of the Netherlands (ICN) is an independent non-governmental organization campaigning and doing advocacy work on human rights issues. Central to the work of ICN are the issues of caste-based discrimination, labour rights and child labour & education. ICN co-operates with organizations in India and elsewhere in combating discrimination, poverty, oppression, exploitation and lack of education, focusing on the role of policy makers and companies. ICN is an active member of networks like the Stop Child Labour campaign, the Clean Clothes Campaign, the International Dalit Solidarity Network and the Dutch MVO (CSR) Platform.

Glocal Research

Glocal Research provides multi-disciplinary research and consultancy services to (state) governments, non-governmental organizations, corporate bodies and national and international development funding agencies. The organization has expertise in the areas of agriculture, child labour, natural resource management, rural development and rural livelihoods. Its multi-disciplinary team of professionals has undertaken several research, monitoring and evaluation studies and facilitates training workshops. Glocal Research is established in 2000 and based in Hyderabad, India.

Over the last 15 years Glocal Research has extensively contributed to policy and academic debates on child labour and agriculture in India. The research carried out by Glocal Research on child labour in cotton production has generated substantial debate among scholars, activists, seed companies and policymakers and contributed to the development of several proactive interventions to address child labour in the seed industry.

What is the Stop Child Labour Coalition

'Stop Child Labour – School is the best place to work' (SCL) aims to eliminate all forms of child labour and to ensure quality fulltime education for all children until the age of 15. Stop Child Labour promotes an area-based approach towards the creation of 'child labour free zones' and 'child labour free production chains'. Stop Child Labour calls on consumers, companies, governments and international organizations to be part of the solution.

Stop Child Labour is a coalition consisting of four non-governmental organizations, including ICN, and two trade unions based in the Netherlands as well as NGOs and unions in Asia, Africa and Latin America. Stop Child Labour is co-ordinated by Hivos.

EXECUTIVE SUMMARY

- **The research data for 2014-15 shows that children under 14 years still account for nearly 16% of the total workforce in vegetable seed farms in India. In 2014-15, a total of around 155,950 children, out of which 50,760 (32.5%) are below 14 years and 105,190 (67.5%) are in the 15-18 year age group, were employed in tomato, hot pepper and okra seed farms in Karnataka and Maharashtra states which account for more than 80% of the total production area in the country.** The persistence of child labour on a large scale is due to the limited coverage and insufficient impact of the present interventions. In the case of adolescent children interventions are almost totally lacking. There are now 105,190 children between 15 and 18 years working in tomato, hot pepper and okra seed fields while this number was 67,898 in 2009-10. This is an increase by almost 55%.
- The other issue of major concern in vegetable seed production discussed in this report is payment of minimum wages to workers. **A comparison of prevailing market wages with the statutory minimum wages fixed by the respective state governments clearly indicates that the legal norms are not followed, especially for women.** The prevailing wage rates for cross-pollination activity, which is the vital activity in seed production, are 46.6% below the legal minimum wage in Koppal and 14.9% in Haveri districts in Karnataka. In Maharashtra they are 23.7% and 11.6% below the legal minimum wage in Lonar and Devalgoan Raja locations in Buldana district, respectively.
- **This present report examines the recent trends in the employment of children and the issue of below minimum wages in hybrid vegetable seed production in India.** The field survey for the present study covered a sample of 235 seed farms producing three types of vegetables - tomato, hot pepper and okra - in 20 villages that are producing seed for both MNCs and major Indian seed companies in the two Indian states namely Karnataka and Maharashtra which account for nearly 80% of the total vegetable seed production in India.
- **The recent figures regarding the magnitude of child labour,** measured in terms of proportion of children to the total workforce and the average number of children employed per acre, in hybrid vegetable seed production in India **show a declining trend in all the states.** The decline is significant in some parts of Karnataka and Maharashtra. However, this has not translated into a decline of the total number of children employed on vegetable seed farms due to a substantial increase in the production area in these states.
- **As a result of the efforts of local and international NGOs, the government, media and social investors, awareness has been created.** Interventions by various agencies, including governmental agencies, the National Commission for Protection of Child Rights, NGOs like MV Foundation, CARE and a union like DRMU, the seed industry and international organizations like ILO, UNICEF and UNDP have in combination had a positive impact and **helped to reduce child labour in the vegetable seed industry.** The India Committee of the Netherlands (ICN), International Labour Rights Forum (ILRF) and the Stop Child Labour coalition have – through its range of reports on the issue and engagement with companies – triggered and supported these efforts by putting ‘the facts on the table’, seeking public attention and encouraging companies to take action.
- **Despite the decline, the total number of children still employed in the vegetable seed sector is huge. The conditions in the fields continue to be very unsafe and exploitative for the children.** The children

are made to work long hours and are paid less than market and official minimum wages. They are also **exposed to poisonous pesticides** used in high quantities in vegetable seed cultivation and are often trafficked as migrants from other places. The existing employment practices in cottonseed farms result in the denial of rights of children and violate many national laws and international conventions.

- **The response of the state governments, particularly Maharashtra, to address the problem of child labour in this sector has not been very encouraging.** These governments, except implementing a few special programmes like National Child Labour Programme (mainly implemented in urban areas focusing on non-agricultural sector) and a back to school programme for school dropout children, have not paid serious attention to tackle the issue. The Maharashtra government in particular is in a 'denying mood' about the existence of large number child labourers in this sector. In fact the employment of children on family farms, which has increased recently, has not received any serious attention from the state governments of Karnataka and Maharashtra.
- **There is a misconception, which is propagated by government and some seed companies, that most of the working children in seed production are family labourers who help their parents during school holidays and before and after school hours. This is not correct.** Though there is an increase in the composition of family children in the total workforce in recent years, they still constitute a small portion of total working children. In 2014-15, family children accounted for less than 30% of the total working children in Karnataka (21.6%) and Maharashtra (27.7%). Also the study noted that most of the children working on seed farms were school dropouts who have discontinued their schooling and are now working as a full time workers. They accounted for nearly 64% of the total working children in Karnataka and 60.6% in Maharashtra.
- **The issue of child labour has received attention from several seed companies and the seed industry association but the interventions have been far from adequate to tackle the problem.** Despite acknowledging the problem and promising steps to address the problem of child labour, seed companies, except for a few multinationals and local companies, to date have not taken any serious efforts to tackle the issue on the farms that are producing seed for their companies. The initiatives undertaken by Syngenta, Bayer, Monsanto, Advanta, Namdhari had – in varying degrees - a positive impact in reducing child labour at the seed farms. Recently – partly after the draft of this report was published - East-West Seed, Kalash Seeds, Nuziveedu, Limagrain, Sakata and Mahyco also started interventions but given the time-frame with still limited impact. Before these interventions, the proportion of children below 14 years to the total workforce in Karnataka varied between 10.5% and 16.3% on farms producing for Advanta, Limagrain, East-West and Sakata. In addition all Indian and multinational companies have around 30% adolescents working on their suppliers' farms. All efforts thus far have only had a limited impact on the overall magnitude of child labour in the industry. Unless all the major seed companies come forward and implement serious measures in collaboration with other stakeholders, it is not possible to solve the overall problem.
- **The minimum wages issue has not received as much attention as child labour and no serious efforts were made to tackle this issue either by the government, the seed industry or by civil society organizations.** There is lack of awareness about the Minimum Wage Act among workers and farmers. The workers in vegetable seed production are not well organized and there are no active worker organizations operating in most of the areas.

CHAPTER I

INTRODUCTION

1.1 Background

The Indian seed market has grown rapidly over the past 10 to 20 years. India pioneered in the development and use of hybrid seeds in various crops. The Indian seed industry is the fifth largest seed market in the world accounting for 4.4% of the global seed market. The introduction of hybrid seeds in the early 1970s has brought significant changes in the quantity and quality of production of various crops in India. It has not only contributed to the rise in productivity and quality, but also generated a substantial amount of additional employment in the agricultural sector.



Despite its positive contribution, hybrid seed production in cotton and vegetable seeds gave rise to new forms of labour exploitation which involves the employment of female children under bonded labour conditions and large scale exploitation. Hybrid seed production, particularly in cotton and vegetable seeds like hot pepper, tomato and okra, is highly labour-intensive and children, particularly girls, are engaged in most of the operations. Seeds are produced through cross-pollination which is done manually. Children are the main source of labour for this activity. They are often employed on a long-term informal (oral) agreement basis through advances and loans extended to their parents by local seed producers. These producers, in turn, have agreements with the large national and multinational seed companies who produce and market hybrid vegetable seeds. Children are made to work long hours and are paid less than the official minimum wages. They are also exposed to poisonous pesticides which are used in high quantities in hybrid seed cultivation.

The latest report *‘Growing up in the Danger Fields: Child and Adult Labour in Vegetable Seed Production in India’* available on the overall situation of child labour in the Indian hybrid vegetable seed industry was published in 2010.¹ According to this report despite some improvements in the areas where interventions

¹ *‘Growing up in the Danger Fields: Child and Adult Labour in Vegetable Seed Production in India’* (2010) by D. Venkateswarlu, jointly published by ICN, ILRF and Stop Child Labour (<http://www.indianet.nl/pdf/dangerfields.pdf>).

against child labour were undertaken, children continued to be employed in large numbers in hybrid vegetable seed production. During the 2009-10 crop season, approximately 152,369 children, out of which 59,417 (39%) are below 14 years and 92,952 (61%) are in the age group 15-18 year, were employed in tomato, hot and sweet pepper, eggplant (*brinjal*) and okra seed plots in the states of Karnataka, Maharashtra and Gujarat. These states account for nearly 95% of the total production area of vegetable seeds in the country. Karnataka has the largest vegetable seed production area in the country accounting for nearly 89,920 (58%) of the total children employed in this sector, out of which 35,458 children are below 14 years and the remaining 54,462 are in the age group 15-18 year. A study conducted on wages in 2012 indicates that non-payment of minimum wages was still a considerable issue in the seed production farms and the wage rates paid to a number of production activities in which mainly women were involved, were below the state-prescribed legal minimum wages.

Since 2010, many developments were of influence on the nature and magnitude of child labour and working conditions in the Indian seed industry. The intensified pressure from international NGOs and social investors like Norges Bank urged MNCs like Monsanto, Syngenta and Bayer to continue their efforts to address the problem of child labour in their supply chain. The decision of Norges Bank to exclude Zuari seed company from its investment portfolio due to the issue of child labour violations, sent strong signals to companies about human rights concerns of social investors.² Other companies like Namdhari, Kalash Seeds, Advanta, Nuziveedu, Mahyco, Raasi, Limagrain, Sakata and East-West Seed have recently started interventions, though still in a limited way, to address the issue of child labour on their suppliers' farms.

The growing demand for hybrid vegetable seeds in domestic and foreign markets has led to an increase in the area under hybrid vegetable seeds in India. It has also attracted foreign investments in the Indian seed industry. Recently several new foreign companies have entered into the vegetable seed business in India. The names of the companies are Japan-based Sakata, France-based Limagrain, Dutch-based companies Enza Zaden and Rijk Zwaan.³ The Indian leading seed companies Nuziveedu and Kaveri have received huge private investments from global investors.⁴ Large companies are slowly increasing their control over the seed industry by expanding their production area and also by acquiring smaller companies.

The Government of India (GoI), in particular the National Commission for Protection of Children's Rights (NCPCR), has taken a serious note of the issue of child labour in the cottonseed sector and during 2008-2012 initiated several measures to address the problem. Since 2010 the Government of India has been implementing the Right to Education Act. Local NGOs and unions, particularly in Andhra Pradesh (*MV Foundation*) and Gujarat (*Dakshini Rajasthan Mazdoor Union*) also continued their mobilisation work to combat child labour. UNICEF and Save the Children Fund with the support from IKEA have been implementing special projects to

² 'Norwegian pension fund withdraws investment in Indian seed company because of child labour. Risk of child labour highlighted by research ICN' (2013) by ICN (<http://www.indianet.nl/NorwegianPensionFund.html>).

³ 'LIMAGRAIN strengthens its presence in India': <http://www.gubbagroup.com/?p=824>, 'Enza Seeds opens subsidiary in India': <http://www.theindiaexpert.com/enza-seeds-opens-subsidiary-in-india>, <http://www.deccanherald.com/content/475098/sakata-invest-rs-100-cr.html>, <http://www.rijkzwaanusa.com/wps/wcm/connect/rz+corporate/rijk+zwaan/news+and+events/news/news+items/rijk+zw+aan+opens+new+subsidiary+in+india>.

⁴ Blackstone GPV Capital Partners Mauritius V-C Limited invested 2500 million rupees in Nuziveedu Seeds in 2010. Oppenheimer International Small Company Fund and HSBC Bank (Mauritius) Limited holds nearly 10% of share in Kaveri Seeds: http://www.moneycontrol.com/news/business/blackstone-to-investnuziveedu-seeds_373516.html.

address the problem of child labour in seed production areas in Andhra Pradesh, Karnataka, Tamil Nadu, Gujarat and Maharashtra.

In the context of the developments mentioned above, the present study makes an attempt to assess the current situation of child labour and prevailing wages in vegetable seed farms in India.

1.2 Objectives of the study

The objectives for this study are as follow:

- To examine the current situation of child labour on hybrid vegetable seed farms in two Indian states namely Karnataka and Maharashtra in the context of recent developments in the industry.
- To assess the situation of child labour and minimum wages on farms producing seed for MNCs.
- To compare the prevalence of child labour and the (minimum) wage situation on farms producing seed for companies who have implemented substantial measures against child labour and companies who implemented limited measures or no measures at all.
- To study the impact of recent positive interventions by the seed industry, the Government of India, NGOs, unions and social investors on the overall situation of child labour in the Indian seed industry.

1.3 Methodology

The results of this study are mainly based on analysis of primary data collected through field visits and interactions with farmers and various categories of workers in vegetable seed farms. The research sample consists of 235 vegetable seed plots in 20 villages that are producing seed for both multinational companies (MNCs) and major Indian seed companies in Karnataka and Maharashtra. These two states account for more than 80% of the total vegetable seed production area in India. Karnataka is the main hub for hybrid vegetable seed production in India. Karnataka accounts for more than 70% of the tomato and hot pepper seed production, and 30% of okra seed production in India. In Karnataka, the survey was conducted in 12 villages in 4 districts, named Koppal, Gadag, Davanagiri and Haveri. These districts are major centres for vegetable seed production in Karnataka. The 4 districts covered in the survey account for nearly 85% of the total vegetable seed production in Karnataka. In Maharashtra, the survey was conducted in 8 villages in the districts Jalna and Buldana. These districts account for more than 80% of hybrid vegetable seed production in the state.

Of the total 235 sample plots 157 (66.6%) are located in Karnataka and the remaining 78 plots in Maharashtra (see table 1). The crop wise distribution of sample farms are as follow: 77 hot pepper, 80 tomato and 58 okra farms. Out of the 235 sample farms 115 (49%) are producing seeds for multinational companies or their joint venture companies, namely Syngenta, Seminis, Nunhems, Sakata, Limagrain (HM Clause), Advanta (Unicorn and Golden Seeds), East-West Seed and Mahyco. The remaining 120 farms are producing seed for Indian companies, namely Namdhari, Ankur, Indo American, JK Seeds, Kaveri, Nuziveedu, Kalash Seeds (formerly Bejo Sheetal) and Raasi. Both Seminis and Nunhems are fully owned subsidiaries of Monsanto and Bayer. Monsanto has a 26% share in Mahyco. Golden Seeds and Unicorn are subsidiaries of Advanta Seeds; East-West Seed India is a 100% subsidiary of East-West International, a Netherlands-based company. Sakata Seed India is a subsidiary of Japan-based Sakata Seed International and HM Clause is a fully owned subsidiary of France-based company Limagrain.

Table 1: Company wise distribution of sample farms surveyed in Karnataka and Maharashtra

Crop	Karnataka		Maharashtra		Total farms
	Indian companies	MNCs	Indian companies	MNCs	
Tomato	30	30	10	10	80
Hot pepper	30	27	10	10	77
Okra	20	20	20	18	78
Total	80	77	40	38	235

The field survey was conducted between July 2014 and January 2015. Information on the age and gender composition of workers, wage rates and working conditions were gathered through interviews and discussions with labourers and seed farmers and also through field observations. In some borderline cases, the age of a worker was determined by the field investigators through physical observation or discussions with workers. Workers who may be 13 or 14 years tended to report their age as above 14 years knowing that the law prohibits employment of children below 14 years. In total 24 cases in hot and sweet pepper plots, 17 cases in tomato plots and 14 cases in okra plots were recorded as doubtful cases of legal age (probably children). The study treated 50% of 'doubtful/probably children' as children below 14 years. The researchers suggest it is reasonable to estimate that half of the doubtful/probable cases would be found to be children.

There are no official data on the total area used for vegetable seed production or the land area operated by individual seed companies. Information on land area used, was gathered through discussions with representatives of seed companies and key informants in seed industry circles. The total number of child labourers in vegetable seed production for the 2014-15 crop season is estimated for each state separately on the basis labour requirements per acre in the sampled farms. By extrapolating the sample data to the total area under vegetable seed production in each state, the total number of child labourers on vegetable seed farms was calculated.

A four member research team, with the help of local resource persons, visited the sample seed plots in different locations. The field investigators encountered several problems while collecting the data on sensitive topics like child labour, particularly from farmers and seed companies. In several plots, particularly hot pepper plots, seeds are produced under so-called net-houses. These are closed areas and unlike in open plots the activities are not visible from a distance. In open plots one can see the activities from a distance and if there are any young children working they can be traced from a distance as well. The activities in net-houses are not visible unless one enters inside. In some plots farmers did not allow the research team to enter into net-houses to interact with the workers. In other plots, although permission was given, due to the reluctance of farmers, investigators could not freely interact with workers to obtain their age and terms and conditions of employment. In such cases, an attempt was made to meet the workers outside the farms at their homes after they returned from the plots. During the field visits to farms 34 children in 27 fields ran away from the plots after seeing the study team approaching the farms. These children were included in the category of 'probably children'. Farmers trained the children to leave the plots if they see any new persons entering into the plots. The research team had to exclude five fields from the sample due to non-cooperation from the farmers.



1.4 Structure of the report

The report is divided into eight chapters. The context of the present study and the scope, objectives and methodology are discussed in Chapter I. The structure of the seed industry and recent developments in organization seed production that have significant implications for the composition of the workforce and the nature and magnitude of child labour in the vegetable seed industry are presented in Chapter II. The nature of work and employment conditions in vegetable seed production are described in Chapter III. The magnitude of child labour and profile of the working children in sample cottonseed farms during 2014-15 crop season in different states are presented in Chapter IV. To analyse the trends in the employment of children the data for 2014-15 is compared with data of 2009-10. The estimates of total number of children employed in cottonseed farms in different states based on extrapolation of data from sample farms are presented in Chapter V. In Chapter VI an analysis of prevailing wage rates in vegetable seed production is discussed. The prevailing wage rates are compared with the statutory minimum wages to find out to what extent the minimum wages in vegetable seed farms are implemented. A summary of the findings as well as concluding remarks are presented in Chapter VII. Recommendations are given in Chapter VIII.

CHAPTER II

RECENT DEVELOPMENTS IN THE INDIAN VEGETABLE SEED INDUSTRY

2.1 Vegetable seed production in India

The Indian seed industry has been growing rapidly in quantity and value over the past two decades. At present the Indian seed industry is the fifth largest seed market in the world accounting for 4.4% of the global seed market after the United States, China, France and Brazil⁵. The Indian seed market has grown 12%, which is much higher than the global seed market growth rate of 5% a year. The growth rate of the Indian vegetable seed market is 10-15% yearly⁶. There has been an increase of 225% in Indian vegetable hybrid seed market during 1998-2013. The global vegetable seeds market was estimated at \$400 million/€278 million in 2013⁷ and out of this India has a share of 11%⁸. The total turnover of the Indian seed market was estimated at INR 100,000 million in 2013 (\$2000/€1389)⁹, out of which nearly 40% was accounted for by Bt. cotton hybrids, 20% by vegetable hybrid seeds and the remaining 40% by other crops.

India is the second largest producer of vegetables in the world, after China, with an estimated production of about 162 million tons from an area of 9.4 million hectares.¹⁰ In the past two decades, vegetable production in India has increased 3 times from 58.5 million tonnes in 1991-92 to 162.9 million tonnes in 2013-14 (see table 2). The increase in yield can mainly be attributed to expanding areas under high yielding vegetable varieties and hybrids. The total cultivated area under vegetables has increased from 5.59 million hectares in 1991-92 to 9.4 million hectares in 2013-14. The rapid growth of vegetable production leads to a continuously increasing demand for quality vegetable seeds.

Table 2: Trends in area, production and productivity of vegetable crops in India

Year	Area (in 1000 ha)	Production (in 1000 tonnes)	Productivity (in tonnes/ha)
1990-91	5593	58532	10.5
2001-02	6156	88622	14.4
2011-12	8989	156325	17.4
2012-13	9205	162187	17.6
2013-14	9396	162897	17.3

Source: 1991-92, 2001-02 data derived from the Indian Horticulture Database, National Horticulture Board (NHB); 2011-12, 2012-13 data derived from the Horticulture Division, Department of Agri. & Cooperation.

⁵ According to the International Seed Federation estimates the global commercial seed market value was USD 45 billion and the Indian seed market value was USD 2 billion in 2013. http://www.worldseed.org/isf/seed_statistics.html

⁶ 'Indian Vegetable seed industry: Status and Challenges' (2014) by A. V. V. Koundinya and P. Pradeep Kumar, http://www.ijpaes.com/admin/php/uploads/705_pdf.pdf.

⁷ As per currency conversion rate in 2013

⁸ 'Vegetable Varieties and Breeder Seed Production' presented at ICAR-DAC interface meeting by B. Singh http://nhm.nic.in/Archive/ICAR_4.pdf.

⁹ See foot note number 5.

¹⁰ In 2012-13, the total area cultivated under different vegetable crops in India was 9.2 million hectares and the total production was 162 million tons (source: Indian Horticulture Database, 2013-14, National Horticulture Board, Ministry of Agriculture, Government of India): <http://agricoop.nic.in/imagedefault/whatsnew/handbook2014.pdf>.

2.2 An increase in the seed production area

The growing demand for hybrid seeds in the market, caused by the rise in commercial vegetables production, resulted in an increase in the area under hybrid vegetable seed production. Table 3 presents the total area under vegetable seed production in for 2009-10 and 2014-15 in Karnataka and Maharashtra. Vegetable seed production in India is largely concentrated in three states namely Karnataka, southern India, Maharashtra, eastern/central India, and Gujarat, western India. In Karnataka the production is concentrated in four districts, Davanagiri, Haveri, Koppal and Gadag. In Maharashtra, production is concentrated in Jalna and Buldana districts, and in Gujarat the Sabarkantha and Chotaudaypur districts are main centres for vegetable seed production. In Gujarat only okra production is concentrated (around 30% of total okra production area in India). The area under other vegetable seed crops is negligible.

Table 3: Trends in area under vegetable seed production in Karnataka and Maharashtra (area in acres)

Crop	Karnataka		Maharashtra	
	2009-10	2014-15	2009-10	2014-15
Tomato	1600	2500	40	450
Hot pepper	900	1150	380	350
Okra	2200	4000	2500	4400
Total	4700	7650	2920	5200

Note: No official data are available on the total area under hybrid vegetable seed production and the area covered by individual seed companies. This information was gathered through discussions with representatives of seed companies and key informants in the seed industry.

2.3 Growing control of multinational companies and major Indian companies

The growing demand for hybrid vegetable seeds in recent years has resulted in the proliferation of private companies, which produce and sell hybrid seeds. Until the early 1990s, there were only local and national seed companies involved in seed production in India. The trade liberalisation policy in the 1990s encouraged the entrance and growth of large multinational and national seed companies.

The production and marketing of hybrid vegetable seeds in India is now mostly controlled by the private sector. Currently private seed companies, both multinational companies (MNCs) and Indian companies, account for nearly 90% of the total hybrid vegetable seed produced and marketed in the country. The seed industry has seen a process of concentration in recent years. MNCs and large Indian companies are slowly increasing their control over the seed industry by expanding their production area as well as by acquiring smaller companies. Though there are over 200 companies involved in vegetable seed cultivation in India, only a few companies control a large market share.

Companies from the Netherlands have a substantial share in the global as well as Indian vegetable seed market. Four Dutch companies – Bejo Zaden, Rijk Zwaan, Nunhems and Enza Zaden – together have a share of 26% of the global vegetable seed market. All of them are active in India. This does not include Netherlands East-West Seed – whose global market share is not known – which is mainly operating in Asia, including in India.

The names of the top 10 companies which control more than 80% of the Indian vegetable seed market are Syngenta, Nunhems (Bayer-owned), Namdhari, Kalash Seeds, Mahyco, Seminis (Monsanto-owned), Advanta, Raasi, Indo-American and Ankur. While Syngenta, Nunhems, Seminis, Advanta are multinational companies,

Namdhari, Raasi, Indo-American and Ankur are leading Indian companies. Mahyco has a joint venture partnership with Monsanto.

The land area and production rates indicate that multinationals control more than 50% of the market share. Syngenta has a leading position in tomato seed production followed by Seminis, Nunhems, East-West, Advanta and Namdhari. Nunhems, Kalash Seeds, Mahyco, Syngenta and Seminis are the leading companies in hot pepper seed production. Mahyco, Syngenta, Bio Seed and Nunhems are leaders in okra hybrid production.

The area directly controlled by MNCs and its partners has been consistently growing in recent years. The production area controlled by MNCs increase from 51% acres in 2009-10 to 60% in 2014-15 (see table 4). Several new foreign companies have recently entered into the vegetable seed industry in India. The names of the companies are Sakata, HM Clause (Limagrain), Enza Zaden and Rijk Zwaan. The production area controlled by Indian companies decreased from 49% in 2009-10 to 41% in 2014-15.

Table 4: Proportion of hybrid vegetable seed production area controlled by MNCs and Indian companies

Type of company	2009-10	2014-15
MNCs	51%	60%
Indian companies	49%	41%

Source: No official data are available on the total area under hybrid vegetable seed production and the area covered by individual seed companies. This information for 2013-14 was gathered through discussions with representatives of seed companies and key informants in the seed industry. The data for 2009-10 was taken from the author's previous report '*Growing up in the Danger Fields*' published in 2010.



2.4 The export market for hybrid vegetable seeds

There is a vast demand for vegetable seeds in foreign countries. India is the ninth major exporter of fruit and vegetable seeds in the world. The major seed importing countries from India are Pakistan, Bangladesh, Saudi Arabia, The Netherlands and the Korean Republic. Next to South Asia, the European Union (EU) is the largest importer of vegetable seeds from India. Exports to EU account for 20% of the total exports value of fruits and vegetable seeds in 2013-14. Within the EU, The Netherlands is the largest importer of vegetable seeds from India. It accounts for nearly 50% of the total exports to the EU. Out of the INR 8731 million/€121.5 million¹¹ exports to the EU in the years 2013-14, INR 3546 million/€49.25 million exports were to The Netherlands. Other EU countries importing vegetable seeds from India are France and Italy. Fruit and vegetable seed exports made up 3.5% of the total horticultural exports from India in the year 2013-14. Vegetable seed exports consist of 70% of the total seed exports. The share of various countries importing fruit and vegetable seeds from India is showed in table 5. The foreign exchange generated through import of fruit and vegetable seeds have increased with 187% from INR 14507 million/€201.5 million in 2009-10 to INR 41657 million/€578.6 million in 2013-14.¹²



Table 5: Trends in exports of fruit and vegetable seeds from India to different countries

Countries	2009-10		2013-14	
	Quantity (in 1000 tons)	Value (in million INR)	Quantity (in 1000 tons)	Value (in million INR)
European Union*	432	2680	1881	8731
South Asia	5574	5757	12545	12035
North America	221	1397	176	4318
Total	8434	14507	19338	41657

* Among the EU countries The Netherlands is the largest importer of vegetable seeds from India (INR 1524 million/€21.5 million in 2009-10 and INR 3546 million/€49.2 million in 2013-14).

¹¹ Currency conversion rate (November 2015): 1 Euro = INR 72.

¹² Agri Exchange, by APEDA, Government of India (http://agriexchange.apeda.gov.in/indexp/18headgenReportmonth_combine.aspx).

CHAPTER III

PRODUCTION ACTIVITIES AND EMPLOYMENT CONDITIONS IN SEED FARMS

3.1 Hybridization: a labour-intensive activity

Hybrid seeds are produced through cross-pollination which is done manually. Cross-pollination of two plants or lines of dissimilar genotype is known as hybridization. Hybridization involves two separate tasks: emasculation and pollination. Emasculation involves removal of the stamen from the flower bud of the female line before the flower sheds its pollen. Emasculation must occur without damaging the stigma, style or ovary. For tomato and pepper crops, sharp-pointed forceps are used to open the selected buds and remove the anther cone from the bud, leaving the calyx, corolla and pistil. Pollination is achieved by exposing the stigma and dipping it into a pool of pollen that has been collected in a container from male parent flowers. This process prevents the self-fertilization of the female parent. As a result of this selective breeding process, hybrid vigour, the hybrid seeds produced can be used for only one crop.

Hybrid seed production in tomato, hot pepper and okra is a labour- and capital-intensive activity. The main tasks which require the involvement of human labour in the production of hybrid seeds are sowing/transplanting, weeding, fertilizer application, pesticide application, staking, pruning, removal of off-type plants, hybridization (cross-pollination), harvesting, seed extraction, cleaning, drying and acid treatment. Among all these activities, hybridization is the key activity which requires large labour force to be completed. Hybridization activity accounts for nearly 70% of the total labour days required for all the three crops studied. Compared to tomato and okra, hot pepper seed production is most labour-intensive. One plot size of 0.25 cents seed production require a total of 500 to 750 days depending upon of type of hybrid (CMS, GMS or conventional). Of these 70% are spent on hybridization. The duration of hybridization activity is 25-30 days in tomato and hot pepper and 30-35 days in okra.

3.2 Seasonal agreements through wage advances and loans

Seasonal agreements where seed farmers pay advances/loans to labourers is a common practice across all seed production locations. Vegetable seed production requires an assured supply of labour for carrying out various activities, particularly cross-pollination work for which labourers are needed every day during the cross-pollination period¹³. As a result, the seed producers prefer to have advance agreements with labourers before starting with the seed cultivation. They employ workers on a long term informal (oral) agreement basis by paying them advances/loans. For the July to December season, workers are given advance payments in March. This loan or advance payment varies between INR 1000 and INR 5000, depending on the state. Compared to Maharashtra, the amount of advance paid to workers is higher in Karnataka. The advance payments are seen as an informal contract and bind the worker to a particular grower for the entire crop season which lasts four to six months for different crops. Nearly 70% of the total hired workers in Karnataka and 66% of the workers in Maharashtra on the sampled farms are employed through advance payments or loans as a seasonal agreement. The workers employed on a daily wage contract basis account for 29.6% in Karnataka and 32.1% in Maharashtra out of the total workers hired. The employment of workers on an annual contract basis which was prevalent in the 1970s and 1980s has come down significantly in recent years. They accounted for less than 2% of the total paid workers in sample farms. See table 6 for an overview of the proportion of workers hired through different types of labour arrangements.

Regarding the advances and loans given to the parents of children, one seed producer in Koppal district, Karnataka, said: *“We need the workers to work in our field all through the season. If workers stop coming half*

¹³ For Kharif [rainy] season crops the cross-pollination period is from September to November.

Table 6: Proportion of workers hired through different types of labour arrangements 2014-15

Type of labour arrangement	Karnataka	Maharashtra
Seasonal agreement	69.2%	66.1%
Daily wage agreement	29.6%	32.1%
Annual labour agreement	1.2%	1.8%
Total	100%	100%

way through, we would make loss. So we take the agreements from them in advance. If they have to abide by the agreement we need to give them some money in advance. If we don't give, there is a danger of them quitting work in the middle and going to work for other farmers (Koppal district, 8th November, 2014)."

In the surveyed area, many of the farmers that are growing vegetable seeds have more than two plots. It is very difficult for an individual grower to manage the workload of two or three plots at a time. For example, a hot pepper crop requires around twenty workers per plot (0.25 acre) during the peak of the cross-pollination period. Farmers plan their sowing dates in order to avoid an overlap in the crossing period between their two or three plots. This overlap allows farmers to manage workers for the entire season to complete the cross-pollination work uninterrupted. Growers, depending upon the number of plots they own are able to provide at least 30 to 120 consecutive days of cross-pollination work for a group of 20 workers in each season¹⁴.



¹⁴ For hot pepper, tomato and okra there are two crop seasons in a year: Kharif [rainy season] and Rabi [post-monsoon].

Though the system of advance payments/loans for hiring labour is still prevalent in all the vegetable seed producing locations, some changes in employment conditions in favour of workers were found during last decade. For example, in Ranibennur district in Karnataka where there is high scarcity of labour, charging interest on advanced payments/loans by farmers is less common now. Some growers also reported that there are cases of workers discontinuing contracts in the middle of the season for the reason they can get better wages in other farms and/or also in other activities.

3.3 Gender division of labour and preference for children

The division of labour between men and women is a common phenomenon in the agricultural sector in India and it is also clearly observed in seed production activities. Women play a predominant role in vegetable seed production activities. Hybridization and harvesting activities for different crops which require about 75 to 80% of labour days are mostly done by women. Nearly 90% of the labourers involved in hybridization activities for tomato and hot pepper are women. Weeding in all the crops is done by women only. Men are almost exclusively involved in ploughing and applying pesticides fertilizers.

The division of work based on gender has earning implications for men and women engaged in various production activities. The wage differences are substantial between cross-pollination, weeding and harvesting operations, which are largely carried out by female labourers, and ploughing and pesticide application which are almost exclusively done by men. Compared to ploughing and pesticide application, the wage rates for weeding, cross-pollination and harvesting are 20 to 40% lower. Therefore on average women workers earn less compared to men workers in vegetable seed farms.

The involvement of children was found in all the labour-intensive activities including weeding, hybridization and harvesting. Similar to hybrid cottonseed production, children have traditionally been favoured for cross-pollination activities in vegetable seed production. Farmers employ children, particularly girls, in order to minimize costs. In vegetable seed production, the labour costs account for the major portion of total cultivation costs. Farmers choose to cut these labour costs by hiring children because the wages paid to children are below the wages paid to adults¹⁵. Farmers also hire children because they yield a higher productivity. Children will work longer hours, will work harder and are generally much easier to control than adult workers.

3.4 Caste composition of the workforce

Most of the workers in vegetable seed farms belong to Dalit (out-caste) or Scheduled Castes (SCs), Scheduled Tribes (STs) or Adivasi (Scheduled Tribes) and Backward Castes (BCs). Out of the total 1859 hired workers surveyed in Karnataka the caste details are available for 1322 workers. Out of these 1322 workers 392 (29.6%) are Dalits and 282 (21.3%) are Adivasi. The Backward Castes account for 33.5% (443), Muslims represent 12.4% (164) and other castes (upper castes) 3.1%. In Maharashtra 34.2% (130 out of total 380 workers) are Dalits from the Sonavane and Kambre castes. Adivasi account for 18.4%, and Backward Castes account for 26.6% of all workers. Other castes like Maratha and Brahmin account for 7.3%, and Muslims account for 13.3%.

¹⁵ The wages paid to children particularly the younger ones who are newly recruited are 10-20% less compared to wages paid to adult workers in Karnataka and Maharashtra.

CHAPTER IV

WORKFORCE COMPOSITION AND MAGNITUDE OF CHILD LABOUR

This section presents findings from the field survey carried out during the 2014-15 crop season in 235 sample seed farms producing tomato, hot pepper and okra seeds for both Indian and multinational companies in Karnataka and Maharashtra. In order to understand the trends in the employment of children in hybrid vegetable seed production in different states, the results of the present study were compared with the previous study carried out by the same author in 2009-10.¹⁶ Field visits to the farms were conducted during cross-pollination, the most labour-intensive activity, which takes up approximately 70% of the total work days required for seed production.¹⁷ The workforce composition and child labour estimates presented in this section are related to cross-pollination activities only.

4.1 The incidence of child labour in Karnataka

Table 7 presents the details of the workforce composition in 157 sample seed plots in Karnataka. Out of the 157 plots 80 plots are producing for Indian companies and 77 for MNCs. The crop wise break up is as follows: 60 for tomato, 57 for hot pepper and 40 for okra plots. The average size of an okra seed plot is 0.92 acres, for hot pepper this is 0.25 acres and for tomato 0.40 acres for open field and 0.25 acres for net-house plots.

During the field visits to 157 seed plots in Karnataka a total of 2266 workers were found doing cross-pollination activities on the plots. In most of the sample farms it was observed that family members of the growers take active part in various production activities. They work side by side with the hired labour. As seed production requires a large number of labourers hiring labour is a must, even for small and marginal farmers. Family labour accounted for (much) less than 20% in all the seed varieties.



¹⁶ 'Growing up in the Danger Fields: Child and Adult Labour in Vegetable Seed Production in India' (2010) by D. Venkateswarlu, jointly published by ICN, ILRF and Stop Child Labour (<http://www.indianet.nl/pdf/dangerfields.pdf>).

¹⁷ Compared to okra, hot pepper and tomato seed production is more labour-intensive. Depending upon plant population, the average tomato plot (0.40 acres open field, 0.25 net-house) requires about 250-300 work days and the average hot pepper plot (0.25 acres) requires 350-450 work while the average okra plot (0.50 acres) requires 200 work days for completion of cross-pollination activity.

Family labour accounted for 14.7% in hot pepper, 17.3% in tomato, and 19.9% in okra farms. Compared to 2009-10, there is a small increase in the proportion of family labour to the total workforce in all the seed varieties.

Children under the age of 14 years accounted for 20.6% of the total workforce in hot pepper, 17.4% in okra and 10.2% in tomato. Of the total 1096 persons found working during field visits to 57 sample farms of hot pepper, 222 were children below 14 years old. In tomato farms, out of a total of 652 workers 67 were below 14 years while in okra farms 90 out of 518 workers were children under the age of 14. Children in the age group 15-18 accounted for nearly 30% of the total workforce (31.3% in hot pepper; 30.2% in tomato; 28.5% in okra). The average number of children below 14 years per acre is 15.8 in hot pepper, 2.8 in tomato and 2.5 in okra farms.

Regional variations were found in the incidence of child labour. Compared to other locations, the magnitude to child labour was very low in all companies' farms in Haveri district where tomato seed production is largely concentrated¹⁸. The low incidence of child labour in tomato farms is caused by contextual variations in the region. For example less child labour in Haveri district can mainly be attributed to relatively high literacy rates both among growers and workers. Other important positive factors for Haveri, compared to Koppal and Davanagiri districts: Haveri has well-functioning schools, high agricultural growth rates and better infrastructure.

Table 7: Workforce composition and child labour in sample farms in Karnataka

	Hot pepper		Tomato		Okra	
	2009-10	2014-15	2009-10	2014-15	2009-10	2014-15
Total number of seed plots surveyed (approx. area in acres)	60 (15 acres)	60 (15 acres)	90 (35 acres)	60 (24 acres)	50 (48 acres)	40 (36.8 acres)
Total number of workers engaged during cross-pollination activity	1140	1096	1172	652	696	518
% of family labour to total labour	12.4% (142)	14.7% (161)	13.5% (158)	17.3% (113)	14.6% (102)	19.9% (103)
% of hired labour to total labour	87.4% (998)	85.3% (935)	87.5% (1014)	82.7% (539)	85.4% (594)	80.1% (415)
% of children (below 14 years) to total workforce	26.8% (306)	20.2% (222)	11.6% (136)	10.2% (67)	20.6% (144)	17.4% (90)
% of girls to total children	64.1% (196)	65.8% (146)	63.2% (86)	65.7% (44)	68.1% (98)	61.1% (55)
% of children (15-18 age group) to total workforce	29.5% (336)	31.3% (343)	35.1% (412)	30.2% (197)	27.9% (194)	28.5% (148)
% of girls to total children (15-18 age group)	67.8% (228)	70.3% (241)	63.6.2% (262)	70.5% (139)	63.9% (124)	71.6% (106)
Average number of children (below 14 age) per acre	20.4	15.8	3.9	2.8	3.0	2.5
Average number of children (15-18 years) per acre	22.4	22.9	11.8	12.2	4.0	4.1

Compared to 2009-10, there is a small decline in the prevalence of child labour in all seed varieties. The proportion of children under 14 years to the total workforce declined in tomato from 11.6% in 2009-10 to

¹⁸ Out of total 157 sample farms surveyed in Karnataka 48 farms (30.6%) are located in Haveri district.

10.2% in 2014-15, in hot pepper from 26.8% in 2009-10 to 20.2% in 2014-15 and in okra from 20.6% in 2009-10 to 17.4% in 2014-15.

Girls accounted for more than 60% of all children working on the seed varieties. The participation of adult male workers is very insignificant in the cross-pollination activity. Adult males accounted for less than 5% of the total adult workforce in all seed varieties.

Bhagayamma, an unpaid child worker working in vegetable seed fields

Bhagayamma, a 14 year old girl from a backward caste, has been working in vegetable seed fields of her uncle in a remote village in Koppal district in Karnataka state for the last two years. She discontinued her studies after 7th class because there is no high school in her village and she has to travel five kilometres if she wants to study after 7th class. Her parents were not interested to send her to the neighbouring village for higher studies. Instead she was sent to her uncle's house to work in his hot pepper seed plot in a village 15 kilometres away from her home. Bhagayamma is not paid anything directly for her work. Her uncle promised to assist her parents to find a suitable husband for Bhagayamma.

Her daily routine at her uncle's house starts with waking up early in the morning at 6.00 am and getting ready by 8.00 am to go to the fields. From 7.00 am to 8.00 am she helps her aunt with domestic activities like fetching water, washing clothes, cleaning utensils and cooking. From 8.00 am in the morning till 6.00 pm in the evening she is in the fields doing various kinds of work. She is engaged in cross-pollination till 11.00 am. From 11.00 am to 1.00 pm she does other agricultural work like weeding, pruning plants, applying fertilizer and carrying water for pesticide application. From 1.00 to 2.00 pm she has a one hour break for having lunch and to rest. From 2.00 to 6.00 pm she is engaged in emasculation work. She comes back home at 7.00 pm where she helps her aunt again with domestic activities from 7.00 to 8.30 pm. After dinner at 8.30 pm she watches TV for about an hour and goes to bed at 9.30 pm.

4.2 The incidence of child labour in Maharashtra

Table 8 presents the details of the workforce composition in 78 sample farms in Maharashtra. In Maharashtra the survey was conducted in Buldana and Jalna districts, where seed production is concentrated. Out of the 78 farms, 38 were producing for MNCs and 40 for Indian companies. The leading companies involved in vegetable seed production in Maharashtra are Syngenta, Mahyco, Seminis, Nunhems, Kalash Seeds, Ajit, Krishidhan and Bio-Seed.

Compared to Karnataka, the average size of an okra seed plot is very small in Maharashtra. The average okra seed plot size is 0.35 acres in Maharashtra whereas in Karnataka the average okra seed plot size is 0.92 acres. The average plot sizes of other crops are the same in both states. The involvement of family labour is relatively high in okra plots. Out of the total labour force, family labour accounted for 18.9% in hot pepper, 21.3% in tomato and 37.5% in okra farms. Most okra growers in Maharashtra are small land holders who tend to depend more on their family labour for their agricultural operations and therefore okra has the highest proportion of family labourers. Compared to 2009-10, there is a marginal increase in family labour share in the total workforce.

Table 8: Workforce composition and child labour in sample farms in Maharashtra

	Hot pepper		Tomato		Okra	
	2009-10	2014-15	2009-10	2014-15	2009-10	2014-15
Total number of seed plots surveyed (approx. area in acres)	20 (5 acres)	20 (5 acres)	10 (4.5 acres)	20 (8 acres)	80 (20 acres)	38 (13.5 acres)
Total number of workers engaged during cross-pollination activity	375	359	130	221	402	192
% of family labour to total labour	15.5% (58)	18.9% (68)	15.4% (20)	21.3% (47)	33.3% (134)	37.5% (72)
% of hired labour to total labour	84.5% (317)	71.1% (291)	84.6% (110)	78.7% (174)	66.7% (268)	62.5% (120)
% of children (below 14 years) to total workforce	16.0% (60)	15.3% (55)	14.6% (19)	13.1% (29)	17.4% (70)	16.1% (31)
% of girls to total children	65.6% (42)	70.9% (39)	63.1% (12)	58.6% (17)	65.7% (46)	61.3% (19)
% of children (15-18 age group) to total workforce	30.9% (116)	33.1% (119)	32.3% (42)	28.9% (64)	30.3% (122)	35.9% (69)
% of girls to total children (15-18 age group)	62.1% (74)	68.1% (81)	64.3% (27)	65.6% (42)	62.3% (76)	68.1% (47)
Average number of children (below 14 age) per acre	12.0	11	4.2	3.6	3.5	2.3
Average number of children (15-18 years) per acre	23.2	23.8	11.8	8.0	6.1	5.1

Children under the age of 14 years accounted for 16.1% of the total workforce in okra, 15.3% in hot pepper and 13.1% in tomato. Out of the total of 192 persons found working during field visits in the 38 sample farms of okra, 31 were children under 14 years old. In hot pepper farms, out of total 359 workers, 55 were children under 14 year and in tomato farms out of 221 workers 29 were children under the age of 14. The average number of children (below 14 years) per acre is 11 in hot pepper, 3.6 in tomato and 2.3 in okra farms. Children in the age group of 15-18 accounted for 33.1% of the total workforce in hot pepper, 28.9% in tomato and 35.9% in okra. The average number of children (15-18 years) per acre is 23.8 in hot pepper, 8.0 in tomato and 5.1 in okra farms. Girls accounted for more than 55% of total children in all seed varieties. There are few adult males working in cross-pollination. Overall, adult males accounted for less than 10% of the total adult workforce in all seed varieties.

Compared to 2009-10, there is a small to marginal decline per acre in the incidence of child labour. The proportion of children under 14 years to the total workforce declined in tomato from 14.6% in 2009-10 to 13.1% in 2014-15, in hot pepper from 16% in 2009-10 to 15.3% in 2014-15 and in okra from 17.4% in 2009-10 to 16.1% in 2014-15. During the same period the average per acre employment of children declined by 8.5% in hot pepper, 14.3% in tomato and 34% in okra.

4.3 Profile of the working children

Hired child labour and child workers of growers' families

Table 9 presents the profile of the working children under the age of 14. Most of the working children in seed production farms are hired labourers. They accounted for more than 70% of the total working children in Karnataka and Maharashtra. Compared to Karnataka, the share of family children is relatively high in Maharashtra where they accounted for 27.7%. The proportion of family children to the total number of

working children has marginally increased in recent years, particularly in okra farms in Maharashtra where most of the growers are small landholders who tend to depend mainly on their family for labour.

Most of the working children are Dalits and Adivasi

The details of caste background of working children are available for 315 children from Karnataka and 94 from Maharashtra. The data clearly indicate that most of the working children are from economically poor and socially backward communities like Dalits, also called Scheduled Castes (SCs), Adivasi, also called Scheduled Tribes (STs) and Backward Classes (BCs). In Karnataka the largest number of working children are from Backward Castes. Out of the 315 children in Karnataka, 43.4% are BCs, 28.2% are SCs, 16.2% are STs and the remaining 11.8% are from other castes. In Maharashtra children from STs and SCs account for 55% of the total working children.

Educational status: Most of them are school dropouts

Most of the children found working on seed farms were school dropouts who have discontinued their education, usually around the age of 11 to 13 years and are working as a full time workers. The school dropouts

Table 9: Profile of working children in sample seed farms 2014-15

	Karnataka	Maharashtra
Total number of sample farms	157	78
Total number of children under the age of 14	315	94
Family vs hired child labour		
% of family child labour to total labour	21.6% (68)	27.7% (26)
% of hired child labour to total labour	78.4% (247)	72.3% (68)
Caste composition		
% of Scheduled Castes (SCs)	28.2% (89)	32.9% (31)
% of Scheduled Tribes (STs)	16.2% (51)	22.3% (21)
% of Backward castes	43.8% (138)	30.8% (29)
% of Other castes	11.8% (37)	13.8% (13)
Educational status		
% of school dropouts	64.1% (202)	60.6 (57)
% of school going but working during peak season	21.3% (67)	25.5% (24)
% of school going but occasionally working during school holidays	14.6% (46)	13.8% (13)

Note: The actual number of children under 14 years found working on sample farms in Karnataka is 379 and Maharashtra 115. The details of caste, hiring status and school going status are available for only 315 children in Karnataka and 94 children in Maharashtra.

accounted for more than 60% of the total working children in vegetable seed farms in Maharashtra and Karnataka. Compared to family child labour the dropout rate is more among hired child labour in Maharashtra. The category of children who go to school and temporarily drop out during the cross-pollination season accounted 21.3% and 25.5% of the total working children in Karnataka and Maharashtra respectively. The third category of working children are those who work only during school vacation and holidays. The category of children who temporarily drop out from school during the cross-pollination season has increased in recent years. The pressure on farmers to reduce the labour costs is leading to the adoption of new strategies to find cheap labour. In Karnataka and parts of Maharashtra it is observed that the farmers are encouraging school going children to take up cross-pollination work as a part-time activity.

Basavaraju struggles to combine work and school

Basavaraju, a 13 year old boy, belongs to the Dalit or Scheduled Caste (SC) community from a village located in Harpanahalli Taluk, Davanagiri district in Karnataka state. He is in 8th grade but only goes to school for six to seven months a year. The remaining months he works in hot pepper and tomato seed farms and therefore he is unable to keep up with his studies and his learning results are poor.

Nearly 20% of the children in his class attend school seasonally, like himself. He has one younger brother who is in 3th grade. His family owns two acres of dry land but is primarily dependent on agricultural wage work for their income. His father is an alcoholic and spends most of his earnings on liquor. He also suffers from tuberculosis and does not go to work regularly.

Basavaraju's mother is the only member in his family who works full time. In order to supplement her income Basavaraju started working in the tomato seed farms. There are many children like Basavaraju in his village who are part-time workers struggling to combine both work and school and are unlikely to continue their studies. A school teacher says: *"The work in vegetable seed farms is putting pressure on children to leave the school. Children are preferred for cross-pollination activity. Children who go irregular to school, because of their engagement in seed production activities, find it difficult to manage their studies and eventually drop out of school."*

4.4 Magnitude of child labour on farms supplying to MNCs

As already mentioned MNCs control about 60% of the seed production area in hybrid tomato, pepper and okra seeds in India. The issue of child labour in hybrid seed production in India has received considerable attention from some of the MNCs. In particular Syngenta, Nunhems and Seminis have taken steps to address the problem of child labour on farms producing seed for their companies. Syngenta joined the Fair Labour Association (FLA) in 2004 as the first agribusiness member of the association to implement the FLA code of conduct, which is based on the ILO's decent work labour standards. The issue of child labour was one of the reasons for Syngenta to join with FLA. In their partnership with FLA, Syngenta has been implementing various measures to address the problem of child labour in their suppliers' farms since 2006. These measures include awareness and motivation campaigns for the growers, strict provisions against child labour in contractual agreements, development of internal monitoring systems to identify non-compliance issues and consultations with stakeholders for developing remediation plans for addressing the child labour issue.

The issue of child labour in seed production farms received special attention from Bayer and since 2005 it has been implementing various measures to tackle the issue. Bayer started with cottonseed plots and extended its

child labour intervention to vegetable seeds plots later on. The vegetable seed business of Bayer is operated through its Netherlands-based subsidiary 'Nunhems'. Since 2007, Nunhems has implemented an action plan to discourage its growers from employing children on their farms. The action plan includes awareness and motivational campaigns to educate the growers, price incentives for growers that do not employ children and blacklisting of farmers who use child labour. The company has developed an internal monitoring system to track the incidence of child labour and mechanisms for rehabilitation of identified child labourers in local schools.

Seminis, the vegetable seed arm of Monsanto, also initiated steps to tackle the child labour issue on their suppliers' farms. Since 2009 it has been implementing measures including awareness and motivation campaigns aimed at the growers, provisions against child labour in contractual agreements, internal monitoring systems to identify non-compliance issues and supporting local NGOs for rehabilitation of child workers.

The issue of child labour also received attention from other MNCs like Advanta, Limagrain, East-West Seed and Sakata and they too initiated some measures to address the issue. Some of these companies have recently entered into vegetable seed production activities in India (either through establishing their own subsidiary units or acquiring the existing local seed companies) and they are in the preliminary stages of implementing their programmes to address the issue of child labour in their suppliers farms. When the research team visited farms of these companies in 2014 it was observed that the activities of some of these companies were largely confined to including a no child labour clause in their contracts with growers and organizing a few awareness raising meetings with farmers to tackle the problem.

The data on the magnitude of child labour on contracted seed farms of individual companies for 2014-15 shows considerable difference in the incidence of child labour between companies who have already implemented substantial measures to tackle the problem of child labour and those who are in the process of implementing them. Compared to other companies, the incidence of child labour was found quite low on farms producing for Nunhems, Syngenta and Seminis which have been working on the issue of child labour for quite some time and implemented some systematic measures. The proportion of children below 14 years to the total workforce was found less than 2.5% in Karnataka and less than 2% in Maharashtra in Nunhems, Syngenta and Seminis farms which is significantly lower compared to industry averages of around 17% in Karnataka and 15% in Maharashtra.¹⁹ The incidence of child labour on farms producing for other MNCs such as Advanta, Limagrain, East-West and Sakata indicates that, it is still a lot higher compared to companies which implemented systematic measures to address the problem. The proportion of children below 14 years to the total workforce in Karnataka state varied between 10.5% and 16.3% on farms producing for Advanta, Limagrain, East-West and Sakata. In the case of employment of adolescent children the situation in MNCs farms is no different from other companies. The proportion of children between 15 and 18 years old accounted for 28.4% of the total workforce in MNCs farms in Karnataka which is close to general industry average figure of 30%.

¹⁹ According to the internal monitoring data published by these companies on their company websites or shared with the author the incidence child labour in terms of proportion of children to total workers for 2014-15 stand at less than 0.2%.

Shakila was forced to leave school and work in seed production farms

Shakila, a 14 year old girl, hails from a Muslim family in a village in Koppal district, Karnataka. She works in tomato and water melon seed plots of a grower who produces seeds for three different companies. Shakila started working in the seed plots in 2011. Her family consists of her parents, one younger brother, one elder brother and two elder sisters. One younger brother attends school. One elder sister is married and now lives with her husband. Though her family owns two acres of dry land, their main source of income is agricultural wage work. Her father is alcoholic and what wages he has, he spends mostly on alcohol.

In 2011 Shakila's parents needed a loan to pay for her sisters dowry. They took a loan of INR 10,000 from a tomato seed farmer from the same village and send her to work. Since then, she has been continuously working with the same employer. The farm is two kilometres from her home, close enough to walk to work. Every day she leaves her home at 8.00 am and returns from the field at 6.00 pm. Her daily wage rate is INR 120. Shakila had to leave school in sixth class in order to work on the farm. Shakila is not happy with her work. She says: *"I was happy when I was studying. I used to have a lot of fun with my friends. I had to discontinue my studies because of my family problems. Whenever I see children of my age who are going to school I get a feeling that I am missing something. I like to go back to school if I get the opportunity."*

4.5 Response from seed companies to the child labour issue

A draft version of this study report was shared with seed companies, which are included in the study, for review and feedback in May 2015. Most of the companies including Advanta, Limagrain, East-West and Sakata have responded to the request for review and gave their feedback on the collected data and study results. The overall response from seed companies to the draft report was positive and constructive, though some of them raised questions about the sample size and were surprised about the magnitude of child labour on their suppliers farms. Some companies have requested the researchers to share additional study details about their production plots for their internal investigation and to cross-check the study findings. The study team shared the additional details requested by the companies accordingly. The report seems to be taken seriously by the companies and is used as an opportunity to review their ongoing activities and initiate new steps to strengthen their efforts to tackle the issue of child labour in their supply chains.

The study team has revisited some of the seed production locations during July-August 2015 in Karnataka where production plots of Advanta, Limagrain, East-West Seed and Sakata are located. During this visit it was observed that several new initiatives have been undertaken by these companies for the current seed production season (2015-16) to address the issue of child labour. These initiatives include training and awareness programmes for company field staff, seed organizers and growers, strengthening communication systems, interactions with other stakeholders and tracking of the child labour situation through internal and external audits. These measures, if implemented effectively, are expected to lead to a reduction in child labour. East-West Seed has established internal mechanisms to report and monitor incidences of child labour in all of its hybrid seed production fields in May 2015. With the aid of technology, management receives real time reports on observations by field inspectors. According to the internal audit data of the company as of November 2015, there has been 0.6% reported incidence of child labor in all 1,011 fields surveyed during the pollination period. While no verification of these reported numbers has yet been made by the study team, these results are encouraging and show significant improvement compared to our findings in 2014.

CHAPTER V

ESTIMATES OF THE TOTAL NUMBER OF CHILDREN EMPLOYED IN VEGETABLE SEED FARMS IN KARNATAKA AND MAHARASHTRA

In the previous section, we presented the findings of the survey of sample vegetable seed farms in Karnataka and Maharashtra states. In the present section an attempt is made to estimate the approximate total number of children employed in all the tomato, hot pepper and okra seed farms in both states for the year 2014-15 and compare these results with the year 2009-10. The estimates of the total number of children employed in vegetable seed farms for the year 2009-10 for Maharashtra and Karnataka are taken from the author's previous study published in 2010.²⁰ The total number of child labourers in vegetable seed production plots for the year 2009-10 were estimated for each state separately on the basis of the per acre average requirement of labour and the proportion of child labour to the total workforce in the sampled farms. This was done by extrapolating the sample proportions to the total area under vegetable seed production in different states. Using a similar methodology, the total number of children employed in tomato, hot pepper and okra seed farms are estimated for the year 2014-15 for different states.

The total production area is one of the determining factors of the magnitude of child workers involved in vegetable seed production. Table 10 presents the data on the total area under tomato, hot pepper and okra seed production for 2009-10 and 2014-15. The total area under tomato, hot pepper and okra seed production increased significantly in both the states since 2009-10. In Karnataka the area increased by 62.7% and in Maharashtra it increased by 78.0% between the 2009-10 and 2014-15 years (from 4700 acres in 2009-10 to 7650 acres in 2014-15 in Karnataka and from 2920 acres in 2009-10 to 5200 acres in 2014-15 in Maharashtra). The rise or fall of the total number of child labourers involved in vegetable seed production has to be understood in the context of changes in production area.



²⁰ 'Growing up in the Danger Fields: Child and Adult Labour in Vegetable Seed Production in India' (2010) by D. Venkateswarlu, jointly published by ICN, ILRF and Stop Child Labour (<http://www.indianet.nl/pdf/dangerfields.pdf>).

Table 10: Total production area and average number of children employed per acre

Crop	Karnataka		Maharashtra	
	2009-10	2014-15	2009-10	2014-15
Tomato				
Total production area (in acres)	1600	2500	40	450
Average number of children per acre (below 14 years)	3.9	2.8	4.2	3.6
Average number of children per acre (15-18 years)	11.0	12.2	11.8	8.0
Hot pepper				
Total production area (in acres)	900	1150	380	350
Average number of children per acre (below 14 years)	20.4	15.8	12.0	11.0
Average number of children per acre (15-18 years)	22.4	22.9	23.2	23.8
Okra				
Total production area (in acres)	2200	4000	2500	4400
Average number of children per acre (below 14 years)	3	2.5	3.5	2.3
Average number of children per acre (15-18 years)	4	4.1	6.1	5.1
Total production area	4700	7650	2920	5200

Note: The average farm size of hot pepper is 0.25 acre, for tomato 0.40 acre. The average okra farm size is 0.92 acre in Karnataka whereas in Maharashtra the farm size is 0.35 acres. No official data is available on the total extent of area under vegetable seed production or the full area covered by individual seed companies. This information was gathered through discussions with representatives of seed companies and key informants in seed industry circles.

Table 11 presents the estimates of the approximate total number of children employed in tomato, hot pepper and okra seed farms in Karnataka and Maharashtra where vegetable seed production is largely concentrated in India for the years 2009-10 and 2014-15.

Table 11: Estimates of the total number of children employed in hybrid vegetable seed production in Karnataka and Maharashtra for 2009-10 and 2014-15

year	Karnataka				Maharashtra			
	Total children (below 14 years)		Total children (15-18 years)		Total children (below 14 years)		Total children (15-18 years)	
	2009-10	2014-15	2009-10	2014-15	2009-10	2014-15	2009-10	2014-15
Okra	6600	10000	8800	16400	8750	10120	10250	23460
Hot pepper	18360	18170	21960	22900	4560	3850	8816	8330
Tomato	6240	7000	17600	30500	160	1620	472	3600
Total	31200	35170	48360	69800	13470	15590	19538	35390

A total of approximately 155,950 children, out of which 50,760 (32.5%) are below 14 years and 105,190 (67.5%) are in the 15-18 year age group, were employed in tomato, hot pepper and okra seed plots in Karnataka and Maharashtra states. The area accounts for more than 80% of the total production area for these seed varieties in the country. Taking it account the additional 20% of production, the number of children working in these vegetable seed crops is probably higher.

Karnataka has the largest vegetable seed production area in the country and accounts for its labour on nearly 67.3% (104,970) of the total children employed in the three sample crops. Out of the 104,970 children 35,170 (33.5%) children are below 14 years and the remaining 69,800 children are in the age group of 15-18 year. A total of 50,980 children were employed in Maharashtra, out of which 30.5% (15,590) are below 14 years of age.

The largest number of child labourers below 14 years were found in hot pepper farms. It accounts for nearly 42.1% (22,030) of the total children employed in the three surveyed crops. Following hot pepper, also in okra seed production a high number of children are employed; it accounts for 20,120 children (40.2%). The total number of children below 14 years employed in tomato seed production is 8,620 for both states together.

A comparison of the prevalence of child labour with the 2009-10 study results clearly indicates that despite the substantial increase in the production area by 62.8% in Karnataka and 78.1% in Maharashtra, the absolute number of children below 14 years employed in tomato, hot pepper and okra seed plots showed only a small increase (31,200 in 2009-10 and 35,170 in 2014-15 in Karnataka and in Maharashtra 13,470 in 2009-10 and 15,590 in 2014-15). The number of children in the age group of 15-18 years employed in vegetable seed farms increased remarkably, with an increase of 44.3% in Karnataka and 81% in Maharashtra.

The state wise trends since 2009-10 on the incidence of child labour in tomato, hot pepper and okra seed production, measured in terms of the proportion of children to the total workforce and the average number of children employed per acre for seed production, showed a small decline in both states. The decline is significant in some parts of Karnataka and Maharashtra where there are effective interventions to tackle child labour. However, this has not translated into a decline of the total number of children employed on vegetable seed farms due to a substantial increase of the



production area in these states. The decline in the incidence of child labour per acre and the total number of children below 14 years employed in vegetable seed farms in some parts of these states, can be attributed to interventions undertaken by different players - e.g. government, NGOs, seed industry, international agencies, social investors - to address the issue of child labour.

In Karnataka the low incidence of child labour was reported in Haveri district and parts of Koppal district where local child rights groups like CARE and Don Bosco are very active. Koppal is also a district where UNICEF in collaboration with local government and NGOs implemented a project to address the issue of child labour with a special focus on the seed sector. Compared to other locations, the magnitude to child labour was very low in all companies' farms in Haveri district. The low incidence of child labour in Haveri district can mainly be attributed to relatively high literacy rates both among growers and workers, relatively well-functioning schools and high agricultural growth rates. This is also an area where Syngenta, Bayer, Advanta, Namdhari and Monsanto have considerable control over vegetable seed production and are addressing the child labour issue on their suppliers' farms. The low incidence of child labour in these areas was the result of combined efforts of NGOs, local government, UNICEF, civil society groups and seed companies.

Enrolment of working children into schools brings attitudinal change among parents

Lakshmi, a 13 year old girl, from a remote village in Koppal district, discontinued her school in 2nd class to look after her younger brother at home when their parents go to work. When she became 11 years old she was sent to work in vegetable seed plots. Her parents received INR 4000 as advanced payment from a local seed farmer who grows tomato seeds for a reputed multinational company, and sent her to work in his seed plots. She worked in the seed farm for two years. In 2014 a local NGO working on child rights issues motivated her parents to enrol their daughter in a bridge course school for former child labourers. She attended the bridge camp for 10 months and after that she enrolled in a government school. Now Lakshmi is studying in 7th class and she stays in a girls hostel close to her school.

Prior to joining the school in 2014 she was working in tomato seed fields. In addition to the wage work, she was helping her mother in various domestic activities such as sweeping the front yard, fetching water, washing utensils and cooking. Bringing water and sweeping were only done by her.

The withdrawal of Lakshmi from work brought significant changes in sharing and distribution of work among the members of her family. Both her mother and father started working hard to cover the loss of income and meet the additional expenditure because of her withdrawal from work. The most important change and a positive development, which has occurred at home, is the improved cooperation between her father and mother. This has led to changes in gender division of labour in domestic activities. When Lakshmi was working, her father never used to take part in any of the domestic activities like cooking, cleaning, sweeping, fetching water and buying provisions. In the morning and evening times, he used to spend time outside at the teashops or the local market. He also used to consume liquor frequently and quarrel with his wife. He was also not regular in contributing his wage earnings for the family. Since his wife and daughter were earning, he did not feel responsible and held his wife and daughter accountable for the household needs.

Now his attitude has changed. He is spending most of his spare time at home assisting his wife in domestic activities. Bringing water and collecting fire wood are now entirely taken care of by him. He has reduced his expenses outside the house and is contributing more to the family. He is also working more regularly now and is trying to earn more money.

The attitude of parents towards Lakshmi changed as well. They are showing more affection and love to her. When she was working her parents did not bother to provide her proper clothing and other personal needs. Now they do not hesitate to spend more money on her needs like clothes, *chappals* and fancy items like bangles, ribbons and *bindis*. They also pay attention to her education and discuss about her studies with school teachers and encourage her to study well to get better results.

It is reported that despite the loss of income from Lakshmi's wage earnings her family's total income did not decrease. Both her father and mother are working more time now to cover the loss of income due to their daughter's withdrawal from work.

CHAPTER VI

WAGES RATES: THE ISSUE OF BELOW MINIMUM WAGES

The Minimum Wages Act 1948 in India guarantees payment of minimum wages to workers in different sectors, including the agriculture sector. This act empowers state governments to fix and revise minimum wage rates for different agricultural activities. Once fixed, the wage rates are revised at an interval not exceeding five years. Wages are fixed for timework, known as a 'minimum time rate (daily wage rate)', or for piecework, known as a 'minimum piece rate'. In spite of this legal requirement, payment of (much) less than minimum wages has long been an issue in the agriculture sector, especially in hybrid seed production.

6.1 Wage rates in hybrid seed production: FLA-ICN study findings

A detailed study on the situation of wages in hybrid seed production in different states of India in 2012 indicated a significant variation in wage rates among different states, regions within states, type of production activity, gender, location and nature of labour arrangement.²¹

The study shows that regional variations in wage rates in the same state are present and wages are higher in regions that are relatively developed. The average wages are substantially higher for tasks like ploughing, spraying pesticides and applying fertilizers than the wages for sowing, weeding, harvesting and cross-pollination. The better paid work is mostly done by men. Division of work based on gender is a common phenomenon. This has substantial earning implications for women and men engaged in various production activities. In particular, women are preferred for cross-pollination, weeding and harvesting, which are labour-intensive and lower paid, as compared to ploughing, spraying pesticides and applying fertilizers, which are less labour-intensive, highly paid, and mostly done by men. Daily casual labourers are paid more compared to seasonal labourers in all states for similar activities. Caste-based discrimination in wages was not reported in any of the locations.

With regard to payment of minimum wages the study observed that male workers generally were paid higher than the legal minimum wages for most of the activities in which they are involved. The average daily wages for ploughing and spraying pesticides, which are exclusively done by men, were 5% to 65% higher than the legal minimum wages in different states. Women were not paid legal minimum wages for most activities, except in some locations for cross-pollination. The average daily wage rate for women in sowing, weeding and harvesting activities was 5% to 48% lower than the legal minimum wages in different states. The wage rates for children for all activities were below the legal minimum wages. Children earned 5% to 50% less than the legal minimum wages in different states. Overall, there was non-compliance with regard to overtime compensation and paid rest days.

In order to capture regional variations in wage rates the data on prevailing market wages for the year 2014-15 were collected in two locations in Karnataka and two locations in Maharashtra. In Karnataka the data were collected in Koppal and Haveri districts. In Maharashtra in Lonar and Devalgoan Raja in Buldana district. Compared to Koppal, Haveri is a relatively better developed area. In Maharashtra Devalgoan Raja is relatively better developed than Lonar.

²¹ `Wages of Inequality: Wage discrimination and underpayment in hybrid seed production in India` (2012) by D. Venkateswarlu and J. Kalle, jointly published by the Fair Labour Association (FLA) and ICN (<http://www.fairlabour.org/sites/default/files/documents/reports/wages-of-inequality.pdf>).

6.2 Comparison of statutory minimum wages in Karnataka and Maharashtra

Table 12 presents a comparison of prevailing market wage rates for different activities in vegetable seed production in Karnataka and Maharashtra with statutory minimum wages prescribed by these state governments. The minimum wage rates for daily casual workers for agricultural activities prescribed by the respective state governments varied between INR 155/€2.2 and INR 269/€3.74. While Maharashtra follows a zonal system for fixing wage rates, a uniform wage rate system is followed in Karnataka. The current legal minimum daily wage rate for agricultural operations in Karnataka is INR 269/€3.74 which is uniform for all operations.

Table 12: Comparison of prevailing market wages with statutory minimum wages in 2014-15

Production activity	Karnataka		Maharashtra	
	Statutory minimum wages (INR)	Prevailing market wages (INR)	Statutory minimum wages (INR)	Prevailing market wages (INR)
Ploughing	269.04	Koppal-186.5 Haveri-225.0	Zone III- 160	Lonar-172.5 D Raja-186.7
Sowing	269.04	Koppal-122.5 Haveri-175.0	Zone III- 160	Lonar-106.5 D Raja-114.5
Weeding	269.04	Koppal-120.0 Haveri-166.0	Zone III- 160	Lonar-106.5 D Raja-114.5
Pesticide application	269.04	Koppal-212.5 Haveri-275.0	Zone III- 160	Lonar-186.5 D Raja-204.5
Cross-pollination	269.04	Koppal-143.6 Haveri-228.8	Zone III- 160	Lonar-122.0 D Raja-141.5
Harvesting	269.04	Koppal-133.5 Haveri-182.7	Zone III- 160	Lonar-112.5 D Raja-117.5

Maharashtra has been divided into four zones for setting the legal minimum wages for different agriculture activities. The daily minimum wage rate prescribed by the Maharashtra government for daily casual labour doing manual work varies between INR 155/€2.2 and INR 180/€2.5 across the four zones (Zone I: INR 180/€2.5, Zone II: INR 170/€2.4, Zone III: INR 160/€2.3 and Zone IV: INR 155/€2.2). The two surveyed locations Lonar and Devalgoan Raja are in Zone III.

The findings of the data analysis of the prevailing markets wages for the year 2014-15 are broadly in line with the findings of the wages study in 2012. The average wages are substantially higher for tasks like ploughing and spraying pesticides which are predominantly done by men than the wages for sowing, weeding, harvesting and cross-pollination which is mostly done by women. Regional variation in wage rates are observed as well. In Karnataka wage rates are relatively higher in Ranibennur taluk in Haveri district compared to Koppal district which is a relatively backward region. No significant differences in wages were found between the farms producing seeds for national and multinational companies.

6.3 Wages increased but mostly still below the minimum wage rates

The recent trends in agricultural wages indicate a significant rise in wage rates for different farm activities in many parts of Karnataka and Maharashtra. According to the official data collected by the Labour Bureau, under the Ministry of Labour and Employment, in Karnataka and Maharashtra agricultural wages have increased with 108% and 64% respectively between December 2007 and December 2011. Based on interviews with seed growers and workers and the 2009-10 study a steady increase in wages in vegetable seed production in recent years is observed. Despite these increases, the wages paid for certain activities and especially for women workers are still below the minimum wages.

A comparison of prevailing market wages for the year 2014-15 with the statutory minimum wages (see table 12) fixed by the respective state governments clearly indicates that the legal norms are not followed, especially for certain categories of workers, mainly women, performing specific activities. Except for ploughing and pesticide application in Maharashtra and pesticide application in Haveri in Karnataka, which are almost exclusively done by men, the prevailing market wages for all other activities are below the legal minimum wages. The prevailing wage rates for cross-pollination activity, which is the vital activity in seed production, are 46.6% below the legal minimum wage in Koppal, 14.9% below in Haveri, 23.7% below in Lonar and 11.6% below the legal minimum wage in Devalgoan Raja.

6.4 The relation between procurement prices and minimum wages

A recent study on trends in wage rates and procurement prices in cottonseed producing locations in Andhra Pradesh showed that higher procurement prices for cottonseed led to an increase in wages rates and a decrease in child labour.²² The study indicated that the rise in procurement prices during the years 2010-13 enabled the growers to increase the wages and attract more and more adults to join the workforce. The rise in procurement prices also encouraged the growers to increase the area under cottonseed production, creating additional demand for labour in a market, which is already facing labour shortages. This led to further tightening of labour markets and pushed wages up.

A comparison between procurement prices and prevailing wage rates in vegetable seed crops also indicates that there is a link between procurement prices received by the farmers and wages paid to workers. Wages are generally higher in locations and for crops where procurement prices are higher and farmers have greater profit margins. There are multiple factors that determine the wages paid to workers in seed production. The procurement price is an important factor determining wages.

Detailed insights in the production costs, yields and net income of 16 sample farmers producing tomato seeds for different companies in Koppal district, shows that with current procurement prices and yields farmers would be left with no profits if they had to pay minimum wages to workers. During the year 2014-15 farmers on average earned about INR 164,000/€2277 for growing tomato seed in one plot (size of 0.25 acres) under a net-house. The average yield was 24.5 Kgs of seeds and their gross income was INR 186,750/€2594. Farmers had a net income of INR 22,750/€317 or a 13.9% profit margin over the cost of production.

The prevailing market wages for several operations, including cross-pollination and harvesting, which account for 90% of the labour activities in seed production, are low compared to minimum legal wages. The minimum wage rate for cross-pollination is INR 269/€3.74 in Karnataka. The wage rate paid by the farmers for cross-pollination in Koppal is INR 143.6/€2.0 which is 46.6% below the minimum wage. If minimum wages are taken into consideration, the cost of labour for cross-pollination would rise by 46.6%. This in turn would increase the total cost of production by 16.4%. With the current procurement price and crop yields if farmers have to pay minimum wages to workers they would be left with no income.

²² *'The price of less child labour and higher wages: Assessing the link between farm wages and procurement prices in Bt. cottonseed production in Andhra Pradesh, India'*, (2014) by D. Venkateswarlu, study commissioned by ICN (<http://www.indianet.nl/pdf/ThePriceOfLessChildLabourAndHigherWages.pdf>).



6.5 Response from seed companies to the minimum wages issue

The issue of non-payment of minimum wages has not received the same attention from seed companies as well as from other stakeholders compared to the issue of child labour. Though several companies have taken measures to ensure minimum wages to labourers working on research farms and processing units directly controlled by them, similar efforts have not been made to ensure minimum wages to labourers working on their suppliers seed farms. They are of the opinion that the issue is very complex and requires concerted efforts from different stakeholders.

A few companies like Bayer and Syngenta have recently started some initiatives to address the problem of minimum wages on their suppliers farms. Lack of awareness about the minimum wages act among the seed organizers, growers, workers and company field staff has been recognized by these companies and steps have been taken to create awareness among them. The need for documentation of workers attendance and wage payments has been recognized and both companies initiated steps to motivate the growers to maintain records. Nunhems is paying a small bonus (2% to 6% of the procurement rate depending upon the crop) to growers to encourage them to pay minimum wages to workers. The steps initiated by these companies helped to create some awareness about minimum wages, particularly among growers. Unfortunately these interventions did not result in the payment of minimum wages to workers (see also box underneath).

Nunhems and Syngenta interventions to ensure minimum wages to workers

The issue of non-payment of minimum wages to workers in contracted seed production farms has received attention from Nunhems and Syngenta. Both these companies have acknowledged the issue and initiated some measures to address the problem. Syngenta has conducted two workshops in 2012 with local stakeholders (NGOs, government officials, seed organizers, growers and workers) in Karnataka to discuss the strategies to work on the issue. Lack of awareness about the minimum wages act among the seed organizers, growers, workers and company field staff has been recognized by these companies and steps have been taken to create awareness among them. Growers normally do not maintain any records regarding worker contracts and wage payments. Absence of records makes it difficult for the companies to track wage payments to workers at farm level. The need for documentation of workers attendance and wage payments has been recognized and both the companies initiated steps to motivate the growers to maintain records. Growers have been given separate books to record workers attendance and wages paid to them. Nunhems is paying a small bonus (2% to 6% of procurement rate depending upon the crop) to growers to encourage them to pay minimum wages to workers.

The interaction with growers and workers and review of the documentation related to wage payments at farms producing for Nunhems and Syngenta shows that the steps initiated by these companies helped to create some awareness about minimum wages, particularly among growers. It promoted the habit of record keeping among some growers. However, none of these interventions ensured the payment of minimum wages to workers. A comparison between prevailing wage rates in Nunhems and Syngenta farms with that of other companies in two locations in Karnataka (Koppal and Haveri) shows that there is not much difference in wage rates between different companies. The wage rates received by workers in Syngenta and Nunhems are almost the same as the wages received by workers in other companies' farms. The prevailing market wages for several operations, including cross-pollination and harvesting, which account for 90% of the labour activities in seed production, are below the official minimum legal wages. The minimum wage rate for cross-pollination is INR 269/€3.74 in Karnataka. The wage rate paid by the farmers for cross-pollination in Haveri is INR 237.5/€3.4 and in Koppal it is INR 146.8/€2.03 in Nunhems fields. This is respectively 11.7% and 45.4% below the minimum wage rates. The wage rates paid by the farmers for cross-pollination in Haveri is INR 235.5/€3.3 and in Koppal is INR 144.3/€2.0 in Syngenta fields, which are 12.5% and 46.3% below the minimum wage rates. The cost of production, yields and net income details for 2014-15 for tomato crop collected from farmers in Koppal indicate that after meeting all the production expenses they had only a profit margin of 15% to 19%. If farmers have to pay minimum wages to workers, the cost of production would rise with 16%. With the current procurement prices and crop yields if farmers have to pay minimum wages to workers they would be left with no margins.

A first step in the direction of implementing minimum wages requires companies to have a proper review of their procurement policies and ensure that growers have enough profit margins to pay minimum wages to their workers. Given the gap between prevailing wage rates and legal minimum wages a significant rise in procurement price is required to meet the additional expenses. **This does not mean that an increase of procurement prices automatically results in farmers paying minimum wages to their workers, additional strategies are needed for that. However other interventions to combat the non-payment of minimum wages and child labour will be more effective once the price issue is resolved.**

6.6 Multi-stakeholder consultation on minimum wages issue

A multi-stakeholder consultation workshop to discuss the issues related to child labour and minimum wages in the seed industry was held in Hyderabad, India on August 28th, 2015. Several seed companies and NGOs have participated in this consultation and deliberated on challenges in addressing the issue of non-payment of minimum wages and possible solutions. Around forty representatives from seed companies, civil society organizations and research institutions attended the workshop. Ten seed companies that participated in the meeting including Nuziveedu, Monsanto, Bayer, Syngenta, Mahyco, DuPont Pioneer, Advanta, East-West, Limagrain (with members from HM Clause India and Bisco Bio Science) and Sakata. The non-governmental organizations (NGOs) that participated in the meeting include MV Foundation, CARE and SPEED. Glocal Research participated in the meeting as a research institute. The recommendations of the workshop are presented in box item below.

Implementation of Minimum Wages In Seed Sector: Challenges and Way Forward

A multi-stakeholder consultation workshop to discuss the issues related to child labour and minimum wages in seed industry was held at Hyderabad, India on August 28th, 2015. Several seed companies and NGOs have participated in this consultation and deliberated on challenges in addressing the issue of non-payment of minimum wages and way forward. The outcome from workshop is as follows.

- The participants were broadly in agreement that payment of minimum wages is still an issue in certain pockets of seed production and for certain category of activities and workers.
- Some of the challenges perceived for not ensuring payment of minimum wages in seed production farms are lack of awareness among workers, growers, company field staff, etc., poor government enforcement, lack of demand for minimum wages by the labourers due to unorganized workforce, resistance from farmers as seed production accounts for only small proportion of farmers total agricultural land etc. The group had divergent views with regard to the link between procurement prices and minimum wages.
- Companies have reported that they are ensuring payment of minimum wages to workers working on research farms, processing units, which are under their direct control. However, they stated that they are facing certain challenges implementing the same on their contract growers' farms due to local factors which are beyond their control. Wages are paid by farmers in a local area depending on the supply of and demand for labour. Usually the area of a village used for seed production is 5-10 percent of the total agricultural land, and the farmers do not implement a variable pay system depending on whether they are producing seeds or a commercial product. Growers also fear that, if they pay minimum wages in seed production, which covers only about 10 percent of area, labourers may demand the same payment in all commercial crop production activities also.
- The group felt that compliance to minimum wages in agricultural sector in general and seed production in particular requires concerted efforts from different stakeholders.
- The group recommended the seed companies to take following steps in the short term:
 - a) include minimum wages clause in the written contracts with contract farmers;
 - b) create awareness among farmers and workers on minimum wage legislation;
 - c) consider and include statutory minimum wages calculating cost of seed production and fixing procurement prices. Companies agreed that this is important and agreed to review their existing calculation methods to incorporate this. They, however, expressed serious concern about government regulation on market prices of cottonseeds, which they think is a serious constraint for them to ensure minimum wages while fixing the procurement rates in cottonseed sector;
 - d) conduct a pilot study to explore the payment of minimum wages to workers involved operations like detasseling [removing the pollen-producing flowers] in corn production and seed extraction and cleaning in certain vegetable crops which are directly controlled by seed organizers and companies.

Source: Proceedings from multi-stakeholder consultation on child Labour and minimum wage issues in hybrid seed production held at Hyderabad on 28th August 2015

CHAPTER VII

SUMMARY AND CONCLUDING REMARKS

The issue of child labour in hybrid seeds production in India continues to receive national and international attention and some successful action has been undertaken. There has been much less attention paid to the non-payment of minimum wages to women and successful action has been almost absent. Hybrid vegetable seed production in India, despite its positive contribution to growth in terms of quantity as well as quality of vegetable production and employment generation, gave rise to new forms of labour exploitation. Seeds are produced through cross-pollination which is done manually. Children are the main source of labour for this activity. They are often employed on a long-term contract basis through advances and loans extended to their parents by local seed producers. These producers, in turn, have agreements with large national and multinational seed companies who produce and market hybrid vegetable seeds. Children are made to work long hours and are paid much less than the official minimum wages. They – as well as adults – are also exposed to poisonous pesticides which are used in high quantities in seed cultivation. The existing employment practices in vegetable seed farms result in denial of rights to children and women. They violate many national laws and international conventions. Despite some improvements in recent years, the issue of child labour in the vegetable seed industry, as well as that of wages (far) below the official minimum – especially for women – has been far from solved.

Child Labour

The recent trends in the employment of child labour in hybrid vegetable seed production in India, measured in terms of proportion of children to the total workforce and the average number of children employed per acre, show a marginal decline in Karnataka and Maharashtra. The decline is significant in some parts of Karnataka and Maharashtra where there are effective interventions to tackle the child labour. However, this has not translated into a decline of the total number of children employed on vegetable seed farms due to a substantial increase in the production area in these states.

The growing demand for hybrid vegetable seeds produced in India in national and international markets resulted in an increase in the area under vegetable seed production in India in recent years. The total area under tomato, hot pepper and okra seed production increased significantly since 2009-10. In Karnataka the area increased by 62.7% and in Maharashtra it increased by 78.0% between the 2009-10 and 2014-15 years. Nearly 60% of the market is controlled by multinationals Syngenta, Bayer, Monsanto, Limagrain, Sakata, East-West Seed and Advanta.

The data for 2014-15 shows that children under 14 years still account for nearly 16% of the total workforce in vegetable seed farms in India (17% in Karnataka and 15% in Maharashtra). In 2014-15, a total of approximately 155,950 children, out of which 50,760 (32.5%) are below 14 years and 105,190 (67.5%) are in the 15-18 year age group. They were employed in tomato, hot pepper and okra seed plots in Karnataka and Maharashtra which account for more than 80% of the total production area in the country. Karnataka, which has the largest vegetable seed production area in the country accounts for 67.3% (104,970 out of 155,950) of the total children employed in these two states. The persistence of child labour on a large scale is due to the limited coverage and insufficient impact of the present interventions. This is even more the case for adolescent children. While there are now 105,190 children between 15 and 18 years working in the vegetable seed fields this number was 67,898 in 2009-10. This is an increase by almost 55%.

The response of the state governments, particularly Maharashtra to address the problem of child labour in this sector has not been encouraging. These governments, except implementing a few special programmes like the National Child Labour Programme (mainly implemented in urban areas focusing on the non-agricultural sector) and back to school programmes for school dropouts, have not paid serious attention to tackle the issue. The Maharashtra government in particular is in a 'denying mood' about the existence of large number child labourers in this sector. In fact the employment of children on family farms, which has increased recently, has not received any serious attention from the state governments of Karnataka and Maharashtra.

The study noted that a large portion of working children in vegetable seed production are hired labour who discontinued their studies. Though there is an increase in the composition of family children in the total workforce in recent years, they still constitute a small portion of total working children. In 2014-15, family children accounted for less than 30% of the total working children in Karnataka (21.6%) and Maharashtra (27.7%). Also the study noted that most of the children working on seed farms were school dropouts who have discontinued their schooling and are now working as full time workers. They accounted for nearly 64% of the total working children in Karnataka and 60.6% in Maharashtra.

The issue of child labour has received attention from the seed industry but the interventions initiated by the seed industry association and several individual companies are quite inadequate to tackle the problem. Despite acknowledging the problem and promising steps to address the problem of child labour, seed companies, except for a few multinationals and local companies, to date have not taken any serious efforts to tackle the issue on the farms that are producing seed for their companies. The initiatives undertaken by Syngenta, Bayer, Monsanto, Advanta, Namdhari and very recently East-West Seed, Kalash Seeds, Nuziveedu, Limagrain, Sakata and Mahyco have had – though still to a much lesser degree in the latter companies – some positive impact in reducing the number of working children. However, their total efforts had only a limited impact on the overall magnitude of child labour in the industry. These efforts are nonetheless important, as they pave the way for broader initiatives and show that tackling child labour in the vegetable seed industry is possible and has positive effects on both children and adult workers as the latter are better able to bargain for higher wages. It is therefore very important that individual companies continue to increase their activities with regard to eliminating child labour in their individual supply chains. However, unless all the major seed companies come forward and implement serious measures in collaboration with other stakeholders, including state governments, it is impossible to combat the overwhelming problem of child labour in the industry.

Minimum wages issue

The other issue of major concern in vegetable seed production discussed in this report is the non-payment of minimum wages to most workers, mainly women. The Indian laws guarantee payment of minimum wages to workers in different sectors, including the agriculture sector. In spite of this legal requirement, below payment of minimum wages has long been a serious issue in the agriculture sector, especially in the hybrid seed production. The recent trends in agricultural wages indicate a significant rise in wage rates for different farm activities in many parts of Karnataka and Maharashtra. Despite this rise in agricultural wages, the wages paid for certain activities and especially for women workers are still below the minimum wages.

A comparison of prevailing market wages for the year 2014-15 with the statutory minimum wages fixed by the respective state governments clearly indicates that the legal norms are not followed. Except for ploughing and pesticide application in Maharashtra and pesticide application in Haveri in Karnataka, which are almost exclusively done by men, the prevailing market wages for all other activities are below the legal minimum wages. The prevailing wage rates for cross-pollination activity, which is the vital activity in seed production, are 46.6% below the legal minimum wage in Koppal, 14.9% below in Haveri, 23.7% below in Lonar and 11.6% below the legal minimum wage in Devalgoan Raja.

The issue of non-payment of minimum wages has not received as much attention as child labour and no serious efforts were made to tackle this issue either by the government, the seed industry or by civil society organizations. In many states, the Minimum Wages Act is not implemented properly in the agricultural sector. Moreover, there is lack of awareness about the Minimum Wage Act among workers and farmers. The workers in vegetable seed production are not well organized and there are no active worker organizations operating in most areas.

A few companies like Bayer and Syngenta have recently taken some steps to address the problem of non-payment of minimum wages on their suppliers farms. Lack of awareness about the minimum wages act among the seed organizers, growers, workers and company field staff has been recognized by these companies and steps have been taken to create awareness among them. The need for documentation of workers attendance and wage payments has been felt and both companies initiated steps to motivate the growers to maintain records. Nunhems is paying a small bonus (2% to 6% of the procurement rate depending on the crop) to growers to encourage them to pay minimum wages. The steps taken by these companies helped to create some awareness about minimum wages, particularly among growers. However, these interventions did not result in the payment of minimum wages to workers.

An analysis of recent trends in wages and procurement prices in vegetable seed production indicates that there is a link between procurement prices received by the farmers and wages paid to workers. There are multiple factors that determine the wages paid to workers in seed production, of which the procurement price is an important one. Detailed insights in the production costs, yields and net income of 16 sample farmers producing tomato seeds for different companies in Koppal district, show that with the current procurement prices and yields if farmers had to pay minimum wages to workers they would be left with no income at all.

As a first step in the direction of implementing minimum wages companies need to have a proper review of their procurement policies and ensure that growers have enough margins to pay minimum wages to workers. Given the gap between prevailing wage rates and legal minimum wages a rise in procurement price is required to meet the additional expenses. This does not mean that an increase of procurement prices automatically results in farmers paying minimum wages to their workers. However other interventions to combat the non-payment of minimum wages and child labour will be more effective once the price issue is resolved.



CHAPTER VIII

RECOMMENDATIONS

1. On the basis of the due diligence required by the universally accepted *UN Guiding Principles for Business and Human Rights* in the full supply chain of companies, both multinational and Indian companies have to systematically tackle labour rights violations on their suppliers farms, including child labour, working conditions and wages below the official minimum wage rates.
2. Multinational Companies (MNCs) have to take responsibility to ensure that also their local business partners adhere to nationally and internationally defined labour rights, including combating labour rights violations like child labour and below minimum wages. With regard to child labour this includes adherence to both *ILO Convention 138* (on the Minimum Age for Employment) and *ILO Convention 182* (on the Worst Forms of Child Labour). The latter is of particular importance in view of the hazardous work children between 14 and 18 years are doing in the seed fields. These Conventions provide minimum standards for companies even though India has not yet ratified both Conventions.
3. As several vegetable seed companies have set up programmes against child labour in areas where they are operating, it is advised to use this knowledge in supporting those companies that still have to start with this task or are grappling with the way to do this effectively. As several companies have just started to work in tackling both the child labour and the wages issue, they should preferably be doing this jointly in the setting of a multi-stakeholder initiative having experience working with companies on combating child labour and securing labour rights in the agricultural sector in India. Such joint efforts do not only require monitoring of risks but also active remediation policies and practices. E.g. the *Fair Labor Association* does have such experiences in India, including through their member seed company Syngenta.
4. Solutions to the problem of child labour require their access to quality formal education as part of their remediation after having worked in the seed fields. Where-ever possible an area-based approach to tackle child labour and in getting all working children in these areas into education is to be preferred. The NGO *MV Foundation* in India has effectively spearheaded such a '*Child Labour Free Zone*' approach with very good results, including in cottonseed production areas. The results of this approach in villages with many seed farms has been described in the publication '*No Child Labour – Better Wages*' (2010).²³
5. As cultivation shifts to small family farms, the deployment of children slowly changes from one of migrant/hired child labour to local family labour including the support of the family's children. The seed industry should not hide behind (present and possibly future) legislation that permits child labour on family farms. As this report shows the working hours in seed cultivation imply that children working there will frequently become dropouts. It is therefore also recommended to the government that the proposed amendment to the Indian *Child Labour Act* that allows child labour in family enterprises should be reconsidered.
6. Women and children – which are the large majority of the workers – do not receive a minimum wage nor overtime compensation or paid rest days for their work because of gender-related allocation to certain

²³ '*No Child Labour- Better Wages: Impact of elimination of child labour on wages and working conditions of adult labour*' (2010) by Davuluri Venkateswarlu and RVSS Ramakrishna, jointly published by ICN and FNV Mondiaal.

types of work (like cross-pollination). These types of work are not paid at least the official minimum wage for an 8-hour day. This situation needs to be amended by both government action and action by companies. It also has to be studied if the present minimum wages are actually living wages that allow seed workers to lead a decent life. If not they should be revised and be brought up to a living wage level. Seed workers should also be covered under social security benefits like the *Provident Fund*.

7. The data on production costs, yields and net income shows that with the current procurement prices and yields the farmers would be left with no or little income if they had to pay minimum wages to workers. As a first step in the direction of implementing minimum wages and working towards living wages, companies need to have a proper review of their procurement policies and ensure that growers have enough margins to pay at least minimum wages and preferably a living wage to workers. Given the gap between prevailing wage rates and legal minimum wages a rise in procurement price is required to meet the additional expenses. This does not mean that an increase of procurement prices automatically results in farmers paying minimum wages to their workers, additional strategies are needed for that. However other interventions to combat the non-payment of minimum wages and child labour will be more effective once the price issue is resolved.
8. According to Indian laws and the mentioned UN Guiding Principles, to which India also subscribes, the central and state governments of India, as well as their designated agencies, have the '*duty to protect*' the rights of both children and adults whose rights are violated on seed farms. Looking at the magnitude and seriousness of the violations in vegetable seed production, a special taskforce of state governments to ensure labour rights in this sector is recommended. Such a taskforce should work in close co-operation with local groups, village panchayats, local (child) rights groups, NGOs and unions.
9. The *National Seed Association of India (NSAI)* should play a more proactive role in urging their members to combat child labour and respect labour rights, including by setting up joint programmes and requiring from members to report on progress.
10. Every Indian or multinational seed company, as well as the NSAI, should have an effective grievance mechanism – based on the criteria mentioned in UN Guiding Principles – where both farmers and agricultural labourers can safely file grievances on violations of labour rights and procurement prices at the farm level aiming to resolve those issues. In case of systemic violations or procurement prices that do not enable rectifying these violations, joint programmes to tackle these in a multi-stakeholder setting have to be developed as soon as possible.
11. Civil society organizations – including local groups, NGOs and labour unions – that have shown to be effective *change agents* in tackling child labour and other labour violations in seed production should be supported. It is also crucial that civil society organisations have the freedom to organize, mobilize and give their opinion as guaranteed by the Indian Constitution and Indian laws. Any infringement on these rights by vested interest groups or governmental policies should be questioned and countered by democratic means.