

**Area, Yield, Production and Value of Produce under the Special Programme for Promotion of Millets in Tribal Areas of Odisha**

# **Odisha**

## **Millets Mission**

**2017-18**

**Phase-1**

**Srijit Mishra**



Nabakrushna Choudhury Centre for Development Studies, Bhubaneswar, Odisha  
(An ICSSR Institute in Collaboration with Government of Odisha)

**2020**



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## **Study Team**

Srijit Mishra

(with inputs from Susanta Sekhar Choudhury and Bikash Pradhan)\*

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Professor Srijit Mishra

\* Susanta Sekhar Choudhury is Research Coordinator, Programme Secretariat, and Bikash Pradhan is from the Research Secretariat. The plan and the design of the study was prepared by SM. SSC and BP verified and firmed up the final list of crop cutting experiments. The base calculations have been done by BP under the guidance of SM. SM did the subsequent calculations and prepared the report. The team members benefitted from interaction with other members of the State Secretariat that comprises the Research Secretariat and the Programme Secretariat.





**MR NAVEEN PATNAIK**  
**Chief Minister, Odisha**



### Message

The "Special Programme for Promotion of Millets in Tribal Areas of Odisha," Odisha Millets Mission, is currently operational in 72 blocks spread across 14 districts of Odisha. The current report on year one intervention of the mission indicates that the average area has increased by 44 per cent, the yield increased by 120 per cent and the value of produce per household in real terms has increased by 216 per cent. This has been possible because of its unique institutional framework where the Government of Odisha has been working with civil society and the Academia. The reviews on *Mandia Caf  * at *melas* and events and the first *Mandia Mandi* in *Swabhiman Anchal* are also important milestones under Odisha Millets Mission, which has been a flagship programme of the Agriculture Department of Government of Odisha.

I wish the endeavour all success.

**(NAVEEN PATNAIK)**



**DR ARUN KUMAR SAHOO**

**Minister**

Agriculture and Farmers' Empowerment,  
Fisheries and Animal Resources Development,  
and Higher Education  
Odisha

**Message**

Recognizing the importance of millets to the culture and history of Odisha, Government of Odisha selected *Mandia* as the mascot for the State level Agriculture Fair 'Krushhi Odisha 2020'. This emerged from the Special Programme for Promotion of Millets in Tribal Areas of Odisha (or Odisha Millets Mission). As a part of the programme, it was my privilege to have been associated with the historic initiative in December 2019 when Government of Odisha opened-up *Mandia Mandi* in *Swabhiman Anchal* of Malkangiri. It was the first ever procurement for any grain in this region. I am happy to note that in the first year of the programme, compared to the baseline, the yield has increased by more than two times and the value of production has increased by more than three times, as per the report on *Area, Yield, Production and Value of Produce* for 2017-18.

I wish the programme all success.



**ARUN KUMAR SAHOO)**





**MR ASIT TRIPATHY, IAS**  
Chief Secretary, Odisha



## Message

The Special Programme for Promotion of Millets or Odisha Millets Mission (OMM) deserves accolades by virtue of its outcomes in the first year itself. A comparative analysis of the *Area, Yield, Production and Value of Produce* for 2017-18, as documented by Nabakrushna Choudhury Centre for Development Studies (NCDS), shows increase in yield by more than two times and enhancement in value of the produce by more than three times.

OMM has also grounded convergence with Mission Shakti by installation of *Mandia Café* involving women self-help groups. This convergence showcases juxtaposition of production and consumption initiatives, a firm step towards nutritional security.

The programme needs to be further enlarged both in terms of area coverage and number of nutri-cereals. People's participation at all levels along with seamless collaboration among the stakeholders ranging from agri-input to demand creation and marketing linkage will take the mission to the next higher level.

I compliment the efforts of OMM team and NCDS in bringing out this document and wish the Odisha millets programme all success.

**(ASIT TRIPATHY)**



**MR SURESH CHANDRA MAHAPATRA, IAS**

Development Commissioner-cum-  
Additional Chief Secretary &  
Secretary to Government,  
Planning & Convergence Department

**Message**

Odisha Millets Mission is an important initiative of the Government of Odisha. It is currently operational in 72 blocks across 14 districts of the State. I am happy to note that the report *Area, Yield, Production and Value of Produce under the Special Programme for Promotion of Millets in Tribal Areas of Odisha* on the first year of its intervention in 2017-18, compared to the baseline in 2016-17, indicates that the yield has more than doubled and value of produce per farmer has more than trebled. The information in the report will be helpful in the work of the mission.

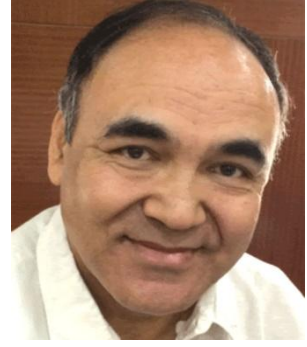
I wish the mission all success.

  
(SURESH CHANDRA MAHAPATRA)



**MR SP THAKUR, IAS**

Chief Administrator, KBK &  
Director General, Gopabandhu  
Academy of Administration



### Message

Tribals have inhabited the remotest parts of India and have had a symbiotic relation with nature. Modern agriculture with emphasis on HYV, fertilizers and pesticides have invaded their primitive agriculture practices and weaned them away from indigenous crops to paddy and wheat. The ill effects of Green Revolution has unfolded and humankind is reverting to organic farming or tribal way of life again.

Odisha Millets Mission has been a step in this direction. This initiative by the Government of Odisha and the Government of India declaring these crops as nutri-cereals are laudable. It is a pleasure to note that the report prepared by Professor Srijit Mishra shows that in the first year of intervention under Odisha Millets Mission, in comparison to the baseline, the yield increased by more than two times and the value of produce increased by more than three times. In my travels in the KBK region I have seen the challenges and also come across a number of success stories in this journey of reviving millets in farms and in plates.

I wish the mission all success.

**(SP THAKUR)**



**MR PK MOHAPATRA, IAS**

Agriculture Production Commissioner-cum-  
Additional Chief Secretary



**Message**

Odisha Millets Mission is a flagship programme of the Department of Agriculture and Farmers' Empowerment. The report *Area, Yield, Production and Value of Produce under the Special Programme for Promotion of Millets in Tribal Areas of Odisha* for 2017-18 indicates doubling of yield and trebling of value of produce in the first year of the programme. The programme forges convergence with civil society and the Academia and also with other line departments. The design of the programme has also envisaged interest among policy makers in Government of India and also in other state governments.

I wish it all success.

**(PK MOHAPATRA)**



**DR SAURABH GARG, IAS**

Principal Secretary to Government  
Department of Agriculture and  
Farmers' Empowerment  
Government of Odisha



## Foreword


The "Special Programme for Promotion of Millets in Tribal Areas of Odisha" (or, Odisha Millets Mission, OMM) is a flagship programme of the Department of Agriculture and Farmers' Empowerment. It has grown from pillar to pillar since its implementation in 2017–18. Today, in 2019–20, it is operational in 72 blocks across 14 districts. In the *Krusha Mela* of 2020, *Mandia*, which also happens to be the Odia name for *Ragi*/Finger Millet, was our mascot. It has been an honour for us that OMM has been instrumental in setting up *Mandia Mandi* in *Swabhimana Anchal* of Malkangiri, a historic feat as this was the first procurement centre in this region for any grain.

An unique aspect of OMM is its institutional architecture where Government of Odisha is working with the Academia (led by Nabakrushna Choudhury Centre for Development Studies, NCDS, which is the State Secretariat and hosts the Research Secretariat of the Mission) and civil society (with Watershed Support Services and Activities Network, WASSAN, hosting the Programme Secretariat under the State Secretariat) to complement and supplement each other. Besides, in each of the blocks, a Non-Governmental Organization (NGO) works as a Facilitating Agency to support the District Administration and the Programme Secretariat, and with a Community Based Organization (CBO) to bridge alliance with the participants. The mission has received attention from the central as also many state governments.

This has also given us an opportunity to build convergence with other line departments. For instance, the involvement of women self-help groups in putting up a stall of *Mandia Café* at the Hockey World Cup 2018 and in many other exhibitions and *melas* subsequently led to convergence with Mission Shakti and Sports & Youth Affairs among others. The

procurement of *mandia* since 2018-19 has led to convergence with Tribal Development Co-operative Corporation of Odisha and the Department of Food and Civil Supplies and Consumer Affairs. The sale of *mandia*-based recipes across restaurants and bakeries of Bhubaneswar and elsewhere (including among others at Chhapan Bhog, Mayfair Hotels and Resorts, Suprava Bakery and Kalinga Bakery through Army Wives Welfare Association at 120 Infantry Battalion) has led to different partnerships.

I am happy to note that the report by Professor Srijit Mishra with support from others at the State Secretariat, while being cautious in its approach, indicates that in year one of intervention under OMM in 2017-18, compared to the baseline, average area under millets per participant household has increased by 44 per cent, the yield has increased by 120 per cent, and the value of produce per household in real terms has increased by 216 per cent. The block-wise results in the report are also positive. This has been possible because of efforts by all stakeholders. It is also an encouragement for all of us involved in the mission to take this forward.



(SAURABH GARG)

## Acknowledgements

This particular report has gone through umpteen rounds of data upgrading and revision, on last count, nineteen, somewhat coinciding with the end of the nineteenth year of the 21st century. It was decided to not take it up further as the marginal value additions were not worth the effort. The brunt of queries fell on the regional and district coordinators and other personnel of the Programme Secretariat (Annexure 1, particularly through Mr Susanta Sekhar Choudhury, their point person) and through them to the facilitating agencies and the community based organizations (Annexure 2) and the state/district-level officials (Annexure 3). Of course, my punching bag happened to be the members of the Research Secretariat team (p.iii, particularly Dr Chita Ranjan Das, Dr Biswabas Patra and Mr Bikash Pradhan). I thank them all.

A programme of this nature, while with feedback structures that are bottom-up, also has robust top-down policy-enabling decision flows. This starts with the Chief Minister and his office as also the Agriculture Minister. I would also like to place my deep sense of appreciation to Mr R Balakrishnan, Indian Administrative Service (IAS, superannuated), currently Chief Advisor, Government of Odisha; Mr Asit Kumar Tripathy, IAS, Chief Secretary; Mr Suresh Chandra Mahapatra, IAS, Development Commissioner-cum-Additional Chief Secretary and Chairperson, Nabakrushna Choudhury Centre for Development Studies (NCDS); Mr Sudarshan Pal Thakur, Chief Administrator, KBK region (comprising current districts of Koraput, Nabarangpur, Malkangiri and Rayagada in the first K, Balangir and Subarnapur in B, and Kalahandi and Nuapada in the last K) and Director General, Gopabandhu Academy of Administration; Mr Pradipta Kumar Mohapatra, IAS, Agriculture Production Commissioner-cum-Additional Chief Secretary; Dr Saurabh Garg, IAS, Principal Secretary, Department of Agriculture and Farmers' Empowerment; Dr Pramod Kumar Meherda, IAS, Special Secretary, Department of Agriculture and Farmers' Empowerment; and Dr M Muthukumar, Director, Directorate of Agriculture and Food Production .

At NCDS administration, I thank my colleagues, particularly, Ms Sumati Jani (Odisha Finance Service), Secretary; Mr Niranjana Mohapatra, Librarian; Ms Sujata Manjari Pani, Assistant Computer Programmer; Mr Debabrata Sahoo, Personal Assistant to Director; Mr Prasanna Kumar Mishra, Senior Assistant; Mr Prakash Kumar Mohanty, Junior Accountant; Mr Nirmal Kumar Mishra, Junior Stenographer; Mr Ch Alok Prabha Panda, Typist - Cum - Diarist (Office Assistant); Mr Prafulla Kumar Mallia, Computer Literate Typist; Mr Bichitrananda Rath, Electrician; Mr Satyabrata Sahoo, Photocopy Operator and all other support staff working behind the scene (including the staff of third-party service providers - house-keeping, security, and gardening among others) for their support, help and cooperation.

Srijit Mishra  
27 February 2020

## Abbreviations and Notations

₹	Rupee
CCE	Crop Cutting Experiment
Ha	Area in hectare
IAS	Indian Administrative Service
ICSSR	Indian Council of Social Science Research
KBK	Undivided Koraput, Balangir and Kalahandi districts comprising current districts of Koraput, Nabarangpur, Malkangiri and Rayagada in the first K, Balangir and Subarnapur in B, and Kalahandi and Nuapada in the last K
LS	Line Sowing
LT	Line Transplantation
m <sup>2</sup>	Meter square
N↑	North
N <sub>c</sub>	Number of CCEs
N <sub>p</sub>	Number of farmer participants under Odisha Millets Mission
NCDS	Nabakrushna Choudhury Centre for Development Studies
OMM	Odisha Millets Mission
Q	Quintal
SMI	System of Millet Intensification
WASSAN	Watershed Support Services and Activities Network
Y <sub>avg</sub>	Average Yield
Y <sub>max</sub>	Maximum Yield from all CCE
Y <sub>min</sub>	Minimum Yield from all CCE

Abbreviations used in annexures are explained in the annexures and are not included here.



## Executive Summary

### Introduction

1. The purpose of this exercise is to arrive at estimates of area, yield, production and value of produce on year one of Odisha Millets Mission intervention (2017-18) and to make a comparative assessment with the baseline (2016-17).
2. In year one of Odisha Millets Mission, 8,596 farmer households cultivated millets in 5,182 hectares producing 65,929 quintals with the value of produce at ₹10.73 crore (in real terms based on 2016-17 prices). This is contrasted with the baseline survey of 7,041 farmer households who cultivated millets in 2,949 hectares producing 17,065 quintals with value of produce at ₹2.79 crore.

### Results

3. Average area under millets per farmer household increased by 43.9%, from 0.42 hectare in 2016-17 to 0.60 hectare in 2017-18.
4. Yield of millets increased by 119.8%, from 5.79 quintals per hectare in 2016-17 to 12.72 quintals per hectare in 2017-18.
5. Value of produce per hectare for millets increased by 119.2%, from ₹9,447 in 2016-17 to ₹20,710 in 2017-18 at constant 2016-17 prices.
6. Value of produce per farmer household for millets increased by 215.5%, from ₹3,957 in 2016-17 to ₹12,486 in 2017-18 at constant 2016-17 prices.
7. The increase is robust to two alternative specifications wherein increase in yield has been in the range of 96.2%-183.3%, increase in value of produce per hectare has been in the range of 95.9%-184.0%, and increase in value of produce per farmer household has been in the range of 181.9%-308.7%.
8. A comparative assessment for *mandia* (which in year one of Odisha Millets Mission constituted 95.7% of area under millets, 97.8% of millets produced, and 97.5% of value of produce for millets) indicates that average area per farmer household increased by 53.6%, yield increased by 122.9%, value of produce per hectare increased by 123.4%, and value of produce per farmer household increased by 243.3%.
9. In year one of Odisha Millets Mission, total area under *mandia* cultivation was 4,961 hectares and total production of *mandia* was 64,459 quintals. Season-wise details were as follows: share of area was 94.1% in *kharif* and 5.9% in *rabi*; share of produce was 95.6% in *kharif* and 4.4% in *rabi*; and yields were 13.21 quintals per hectare in *kharif* and 9.56 quintals per hectare in *rabi*.
10. In year one of Odisha Millets Mission, method-wise details were as follows: share of area was 35.6% in system of millet intensification, 63.1% in line transplantation, and 1.3% in line sowing; share of produce was 41.4% in system of millet intensification, 56.5% in line transplantation, and 2.1% in line sowing; and yields were 15.13 quintals per hectare in system of millet intensification, 11.62 quintals per hectare in line transplantation and 21.20 quintals per hectare in line sowing.
11. In year one of Odisha Millets Mission, *suan* and *kodo* were cultivated only in Kalahandi district during *kharif*. Almost all households cultivated *suan* and *kodo* by line sowing, except for one household that cultivated *suan* by system of millet intensification. From the aggregate coverage for millets, *suan* and *kodo* constitute 4.1% and 0.2% of area, respectively; 2.1% and 0.1% of production, respectively; and 2.4% and 0.1% of value of produce, respectively. Their yields were 6.55 quintals per hectare and 8.80 quintals per hectare, respectively.

### Estimation Steps

12. As a first step, the team examined scanned reports of crop cutting experiments for 2017-18 and selected them based on three criteria: legibility, availability of crucial information (season, crop, method of cultivation, and area), and authenticity.
13. A total of 354 crop cutting experiments (347 in *kharif* and seven in *rabi*) were selected. The crop-wise experiments were 338 for *mandia*, 15 for *suan* and one for *kodo*. Method-wise break-up of crop cutting experiments were 239 for system of millet intensification, 98 for line transplantation and 17 for line sowing.
14. To guard against possible selection bias in favour of plots with better yield during crop cutting experiment, the estimated production used the minimum yield from block-season-crop-method-specific crop cutting experiments.
15. Value of produce for 2017-18 at ₹10.73 crore in real terms was based on block-specific sale price of crops in 2016-17, as per baseline survey.
16. To facilitate robustness check, two alternative specifications for production estimation were used. One used minimum yield only when there were at least three season-crop-method-specific crop cutting experiments at the block level (if three experiments were not available at the block level then district, state, crop, or method level minimum from three experiments were used). The other used average yield from block-season-crop-method-specific crop cutting experiments.

### Additional Results

17. For the 27 blocks covered under baseline, average area cultivated under *mandia* has decreased in seven (Gumma and Rayagada in Gajapati, Daringbadi and Phiringia in Kandhamal, and Borigumma, Lamtaput and Nandapur in Koraput) and that for all millets in eight (in addition to the seven blocks for *mandia* it also includes Dasamantapur in Koraput). This could be because area under conventional practice like broadcasting have not been documented, as they cannot be considered as interventions under Odisha Millets Mission.
18. For all the 27 blocks covered under baseline, yield has increased in year one of Odisha Millets Mission and, as a corollary, the value of produce per hectare has also increased.
19. For the 27 blocks covered under baseline, value of produce per household has increased in all except for Dasamantapur in all millets, and Lamtaput in *mandia* and all millets. The reduction in this two blocks was largely on account of reduction in area. Incidentally, in the alternative specification with average yield, the value of produce per households has increased in all blocks including that for Dasamantapur and Lamtaput.

### Conclusion

20. Given the robustness check through the alternative specifications, it can be said that in year one of Odisha Millets Mission, as compared to baseline, average area under cultivation of millets per farmer household has increased by more than two-fifths, yield and value of produce per hectare have increased by more than two times, and value of produce per participant farmer household has increased by more than three times.
21. Odisha Millets Mission rightfully deserves accolades. However, for logistic reasons, it has largely been *mandia*-centric. It has to go beyond *mandia*, to other nutri-cereals, towards its mandated *pusti shasya* (ପୁଷ୍ଟିଶସ୍ୟା) mission. The mission also needs to increase coverage during *rabi*.

## ସଂକ୍ଷିପ୍ତ ଆଲୋଚନା

### ପ୍ରାରମ୍ଭିକ ଉପସ୍ଥାପନ

୧. ଏହି ଲେଖାରେ ଓଡ଼ିଶା ପୁଷ୍ଟିଶସ୍ୟ ମିଶନ୍ କାର୍ଯ୍ୟକ୍ରମର ପ୍ରଥମ ବର୍ଷରେ (୨୦୧୭-୧୮) ଜମିର ପରିମାଣ, ଅମଳ, ଉତ୍ପାଦନ ଏବଂ ଉତ୍ପାଦିତ ଶସ୍ୟର ମୂଲ୍ୟ ଆକଳନ କରାଯାଇ କାର୍ଯ୍ୟକ୍ରମ ପ୍ରାରମ୍ଭ (୨୦୧୭-୧୭) ଥିବା ସ୍ଥିତି ସହ ଏକ ତୁଳନାତ୍ମକ ଚିତ୍ର ପ୍ରଦାନ କରାଯାଇଛି।
୨. ଓଡ଼ିଶା ପୁଷ୍ଟିଶସ୍ୟ ମିଶନ୍ କାର୍ଯ୍ୟକ୍ରମର ପ୍ରଥମ ବର୍ଷରେ ୮,୫୯୬ ସଂଖ୍ୟକ କୃଷକ ପରିବାର ୫,୧୮୨ ହେକ୍ଟର ଜମିରେ ପୁଷ୍ଟିଶସ୍ୟ ଚାଷକରି ୬୫,୯୨୯ କିଣ୍ଟାଲ ଅମଳ କରିପାରିଛନ୍ତି ଯାହାର ମୂଲ୍ୟ (୨୦୧୬-୧୭ ଦର ଅନୁଯାୟୀ) ₹୧୦.୭୩ କୋଟି। ପ୍ରାରମ୍ଭ ଥିବା ସ୍ଥିତିର ସର୍ବୋତ୍ତମରେ ୭,୦୪୧ ସଂଖ୍ୟକ କୃଷକ ପରିବାର ୨,୯୪୯ ହେକ୍ଟର ଜମିରେ ପୁଷ୍ଟିଶସ୍ୟ ଚାଷକରି ୧୭,୦୬୫ କିଣ୍ଟାଲ ଅମଳ କରିଥିଲେ ଯାହାର ମୂଲ୍ୟ ₹୨.୭୯ କୋଟି।

### ଫଳାଫଳ

୩. ପ୍ରତି କୃଷକ ପରିବାର ପିଛା ପୁଷ୍ଟିଶସ୍ୟ ଚାଷଜମିର ହାରାହାରି ପରିମାଣ ୪୩.୯% ବୃଦ୍ଧି ପାଇଛି। ଏହା ୨୦୧୬-୧୭ରେ ୦.୪୨ ହେକ୍ଟର ଥିଲାବେଳେ ୨୦୧୭-୧୮ରେ ୦.୬୦ ହେକ୍ଟର ହେଇଛି।
୪. ପୁଷ୍ଟିଶସ୍ୟର ହେକ୍ଟର ପିଛା ଅମଳ ୧୧୯.୮% ବୃଦ୍ଧି ପାଇଛି। ଏହା ୨୦୧୬-୧୭ରେ ୫.୭୯ କିଣ୍ଟାଲ ଥିଲାବେଳେ ୨୦୧୭-୧୮ରେ ୧୨.୭୨ କିଣ୍ଟାଲ ହେଇଛି।
୫. ମିଶନ୍‌ରେ ପୁଷ୍ଟିଶସ୍ୟର ହେକ୍ଟର ପିଛା ଉତ୍ପାଦନର ମୂଲ୍ୟ (୨୦୧୬-୧୭ର ଦର ଅନୁଯାୟୀ) ୧୧୯.୨% ବୃଦ୍ଧି ପାଇଛି। ଏହା ୨୦୧୬-୧୭ରେ ₹୯,୪୪୭ ଥିଲାବେଳେ ୨୦୧୭-୧୮ରେ ₹୨୦,୭୧୦ ହେଇଛି।
୬. ପ୍ରତି କୃଷକ ପରିବାର ପିଛା ଉତ୍ପାଦିତ ପୁଷ୍ଟିଶସ୍ୟର ମୂଲ୍ୟ (୨୦୧୬-୧୭ର ଦର ଅନୁଯାୟୀ) ୨୧୫.୫% ବୃଦ୍ଧି ପାଇଛି। ଏହା ୨୦୧୬-୧୭ରେ ₹୩,୯୫୭ ଥିଲାବେଳେ ୨୦୧୭-୧୮ରେ ₹୧୨,୪୮୬ ହେଇଛି।
୭. ପରିସଂଖ୍ୟାନ ଦୃଷ୍ଟିରୁ ଅନ୍ୟ ଦୁଇଟି ବିକଳ ଆକଳନ ସହିତ ତୁଳନାରେ ଆମେ ବ୍ୟବହାର କରିଥିବା ଆକଳନର ଯଥାର୍ଥତା ବଢ଼ାଇଛି। ଏହି ଦୁଇଟି ବିକଳ ଆକଳନ ଦ୍ଵାରା ହେକ୍ଟର ପିଛା ଅମଳ ବୃଦ୍ଧିର ସୀମା ୯୬.୨%-୧୮୩.୩%, ପୁଷ୍ଟିଶସ୍ୟର ହେକ୍ଟର ପିଛା ଉତ୍ପାଦନର ମୂଲ୍ୟ ବୃଦ୍ଧିର ସୀମା ୯୫.୯%-୧୮୪.୦% ଏବଂ ପ୍ରତି କୃଷକ ପରିବାର ପିଛା ଉତ୍ପାଦିତ ପୁଷ୍ଟିଶସ୍ୟର ମୂଲ୍ୟ ବୃଦ୍ଧିର ସୀମା ୧୮୧.୯%-୩୦୮.୭%।
୮. ମାଣ୍ଡିଆ (ଯାହା ଓଡ଼ିଶା ପୁଷ୍ଟିଶସ୍ୟ ମିଶନ୍ କାର୍ଯ୍ୟକ୍ରମର ପ୍ରଥମ ବର୍ଷରେ ୯୫.୭% ଜମିରେ ଚାଷ କରାଯାଇଥିଲା, ୯୭.୮% ପୁଷ୍ଟିଶସ୍ୟର ଉତ୍ପାଦନ ଥିଲା ଏବଂ ୯୭.୫% ଉତ୍ପାଦିତ ପୁଷ୍ଟିଶସ୍ୟର ମୂଲ୍ୟ ଥିଲା) ର ତୁଳନାତ୍ମକ ଆକଳନ ଦର୍ଶାଇଥାଏ ଯେ ପ୍ରତି କୃଷକ ପରିବାର ପିଛା ମାଣ୍ଡିଆ ଚାଷଜମିର ହାରାହାରି ପରିମାଣ ୫୩.୬% ବୃଦ୍ଧି ପାଇଛି, ମାଣ୍ଡିଆର ହେକ୍ଟର ପିଛା ଅମଳ ୧୨୨.୯% ବୃଦ୍ଧି ପାଇଛି, ମାଣ୍ଡିଆର ହେକ୍ଟର ପିଛା ଉତ୍ପାଦନର ମୂଲ୍ୟ ୧୨୩.୪% ବୃଦ୍ଧି ପାଇଛି ଏବଂ ପ୍ରତି କୃଷକ ପରିବାର ପିଛା ଉତ୍ପାଦିତ ମାଣ୍ଡିଆର ମୂଲ୍ୟ ୨୪୩.୩% ବୃଦ୍ଧି ପାଇଛି।
୯. ଓଡ଼ିଶା ପୁଷ୍ଟିଶସ୍ୟ ମିଶନ୍‌ର ପ୍ରଥମ ବର୍ଷର କାର୍ଯ୍ୟକ୍ରମରେ ମାଣ୍ଡିଆ ଚାଷର ରତ୍ନ ଅନୁଯାୟୀ ସାରାଂଶ: ୪,୯୬୧ ହେକ୍ଟର ଜମିରୁ ୯୪.୧% ଖରିଫ୍ ରତ୍ନରେ ଓ ୫.୯% ରବି ରତ୍ନରେ, ଏହି ଜମିରୁ ମାଣ୍ଡିଆ ଉତ୍ପାଦନ ହୋଇଥିବା ୬୪,୪୯୫ କିଣ୍ଟାଲରୁ ୯୫.୬% ଖରିଫ୍ ରତ୍ନରେ ଓ ୪.୪% ରବି ରତ୍ନରେ ଏବଂ ହେକ୍ଟର ପିଛା ଅମଳ ହେଉଛି ୧୩.୨୧ କିଣ୍ଟାଲ ଖରିଫ୍ ରତ୍ନରେ ଓ ୯.୫୬ କିଣ୍ଟାଲ ରବି ରତ୍ନରେ।
୧୦. ଓଡ଼ିଶା ପୁଷ୍ଟିଶସ୍ୟ ମିଶନ୍‌ର ପ୍ରଥମ ବର୍ଷର କାର୍ଯ୍ୟକ୍ରମରେ ମାଣ୍ଡିଆ ଚାଷର ପ୍ରଣାଳୀ ଅନୁଯାୟୀ ସାରାଂଶ: ଚାଷ ଜମିର ଭାଗରେ ୩୫.୬% ଶ୍ରୀ ପଦ୍ମ, ୬୩.୧% ଧାଡ଼ି ରୁଆ ଓ ୧.୩% ଧାଡ଼ି ବୁଣା; ଉତ୍ପାଦନର ଭାଗରେ ୪୧.୪% ଶ୍ରୀ ପଦ୍ମ, ୫୬.୫% ଧାଡ଼ି ରୁଆ ଓ ୨.୧% ଧାଡ଼ି ବୁଣା; ଏବଂ ହେକ୍ଟର ପିଛା ଅମଳ ହେଉଛି ୧୫.୧୩ କିଣ୍ଟାଲ ଶ୍ରୀ ପଦ୍ମରେ, ୧୧.୬୨ କିଣ୍ଟାଲ ଧାଡ଼ି ରୁଆରେ ଓ ୨୧.୨୦ କିଣ୍ଟାଲ ଧାଡ଼ି ବୁଣାରେ।
୧୧. ଓଡ଼ିଶା ପୁଷ୍ଟିଶସ୍ୟ ମିଶନ୍‌ର ପ୍ରଥମ ବର୍ଷର କାର୍ଯ୍ୟକ୍ରମରେ ସୁଆଁ ଓ କୋଦୋ କେବଳ ଖରିଫ୍ ରତ୍ନରେ ଓ କେବଳ କଳାହାଣ୍ଡି ଜିଲ୍ଲାରେ ଚାଷ ହୋଇଥିଲା। ଜଣେ ଚାଷୀ ପରିବାର ଦ୍ଵାରା ସୁଆଁ ଚାଷ ଶ୍ରୀ ପଦ୍ମରେ ଏବଂ ବାକି ସମସ୍ତ ସୁଆଁ ଓ କୋଦୋ ଚାଷ ଧାଡ଼ି ବୁଣା ପ୍ରଣାଳୀରେ ଚାଷ ହୋଇଥିଲା। ମିଶନ୍ ଅଧିନରେ ପୁଷ୍ଟିଶସ୍ୟ ଚାଷ ହୋଇଥିବା ଜମିର ଭାଗରେ ୪.୧% ସୁଆଁ

ଓ ୦.୨% କୋଦୋ ହୋଇଥିଲା। ମିଶନ୍ ଅଧିନରେ ପୁଷ୍ଟିଶସ୍ୟ ଉତ୍ପାଦନର ଭାଗରେ ୨.୪% ସୁଆଁ ଓ ୦.୧% କୋଦୋ ହୋଇଥିଲା। ହେକ୍ଟର ପିଛା ଅମଳ ସୁଆଁରେ ୬.୫୫ କିଣ୍ଟାଲ ଓ କୋଦୋରେ ୮.୮୦ କିଣ୍ଟାଲ ହୋଇଥିଲା।

*ପାଠ୍ୟ ପଦ୍ଧତି*

- ୧୨. ଅନୁଧ୍ୟାନରେ ପ୍ରଥମେ ବର୍ଷର (୨୦୧୭-୧୮) ଫସଲ କଟା ପରୀକ୍ଷଣ ଦସ୍ତାବିଜ ଗୁଡ଼ିକୁ ତିନୋଟି ମାପଦଣ୍ଡରେ ତର୍କମା କରାଯାଇଥିଲା ଯଥା - ସ୍ୱତନ୍ତ୍ରରେ ପଢ଼ିହେଉଥିବା, ଗୁରୁତ୍ୱପୂର୍ଣ୍ଣ ତଥ୍ୟ (ରତ୍ନ, ଫସଲ, ଚାଷପ୍ରଣାଳୀ, ଓ ଜମିର ପରିମାଣ) ରହିଥିବା, ଏବଂ ସ୍ୱୀକୃତି ପ୍ରାପ୍ତ ହୋଇଥିବା।
- ୧୩. ସମୁଦାୟ ୩୫୪ଟି ଫସଲ କଟା ପରୀକ୍ଷଣକୁ (୩୪୭ ଖରିଫ୍ ରତ୍ନରେ ଏବଂ ୭ଟି ରବି ରତ୍ନରେ) ନିଆଯାଇଥିଲା। ଫସଲ ଭିତ୍ତିରେ ୩୩୮ଟି ମାଣ୍ଡିଆର, ୧୫ଟି ସୁଆଁର ଏବଂ ଗୋଟିଏ କୋଦୋର। ଚାଷପ୍ରଣାଳୀ ଭିତ୍ତିରେ ୨୩୯ଟି ଶ୍ରୀ ପଦ୍ଧତିର, ୯୮ଟି ଧାଡ଼ି ରୁଆର ଏବଂ ୧୭ଟି ଧାଡ଼ି ବୁଣାର।
- ୧୪. ଫସଲ କଟା ପରୀକ୍ଷଣର ଜମି ଚିହ୍ନଟ ପ୍ରକ୍ରିୟାରେ ଭଲ ଅମଳ ଥିବା ଜମିର ତୟନ ସମ୍ଭାବନାକୁ ଏଡ଼ାଇବା ପାଇଁ ବୁକ୍-ରତ୍ନ-ଫସଲ-ଚାଷପ୍ରଣାଳୀ ଭିତ୍ତିରେ ଫସଲ କଟା ପରୀକ୍ଷଣରୁ ସର୍ବନିମ୍ନ ଅମଳ ଆଧାରରେ ଆକଳନ କରାଯାଇଛି।
- ୧୫. ପ୍ରଥମ ବର୍ଷର (୨୦୧୭-୧୮) ଉତ୍ପାଦିତ ପୁଷ୍ଟିଶସ୍ୟର ମୂଲ୍ୟର ଆକଳନ ପ୍ରାରମ୍ଭ ବର୍ଷର (୨୦୧୬-୧୭) ସର୍ବେକ୍ଷଣରେ ବୁକ୍ସରର ଫସଲ ବିକାର ଦର ଅନୁଯାୟୀ କରାଯାଇଛି।
- ୧୬. ଆମେ ବ୍ୟବହାର କରିଥିବା ଆକଳନର ଯଥାର୍ଥତା ପାଇଁ ଅନ୍ୟ ଦୁଇଟି ବିକଳ୍ପ ସହିତ ତୁଳନା କରାଯାଇଛି। ପ୍ରଥମ ବିକଳ୍ପ: ଯଦି ବୁକ୍ସରରେ ରତ୍ନ-ଫସଲ-ଚାଷପ୍ରଣାଳୀ ଭିତ୍ତିରେ ତିନୋଟି ଫସଲ କଟାର ପରୀକ୍ଷଣ ଥିଲେ ତାହାଲେ ସର୍ବନିମ୍ନ ଅମଳ ଆଧାରରେ ଆକଳନ କରାଯାଇଥିଲା (ବୁକ୍ସରରେ ନଥିଲେ ଜିଲ୍ଲା, ରାଜ୍ୟ, ଫସଲ ବା ଚାଷପ୍ରଣାଳୀ ଭିତ୍ତିରେ ତିନୋଟି ଫସଲ କଟାର ପରୀକ୍ଷଣ ଥିଲେ ତାହାର ସର୍ବନିମ୍ନ ଅମଳ ଆଧାରରେ ଆକଳନ କରାଯାଇଥିଲା)। ଦ୍ୱିତୀୟ ବିକଳ୍ପ: ବୁକ୍-ରତ୍ନ-ଫସଲ-ଚାଷପ୍ରଣାଳୀ ଭିତ୍ତିରେ ଫସଲ କଟା ପରୀକ୍ଷଣର ହାରାହାରି ଅମଳ।

*ଅନ୍ୟାନ୍ୟ ଫଳାଫଳ*

- ୧୭. ଯେଉଁ ୨୭ଟି ବୁକ୍ସରେ ପ୍ରାରମ୍ଭ ଥିବା ଛିଡ଼ିର ସର୍ବେକ୍ଷଣ କରାଯାଇଥିଲା ସେଥି ମଧ୍ୟରୁ ପ୍ରଥମ ବର୍ଷରେ ମିଶନ୍ ଅନ୍ତର୍ଗତ ମାଣ୍ଡିଆ ଚାଷ କରୁଥିବା କୃଷକ ପିଛା ଚାଷଜମିର ହାରାହାରି ପରିମାଣ ୭ଟି ବୁକ୍ସରେ (ଯଥା ଗଜପତି ଜିଲ୍ଲାର ଗୁମ୍ମା ଓ ରାୟଗଡ଼ା, କନ୍ଧମାଳ ଜିଲ୍ଲାର ଦାରିଙ୍ଗବାଡ଼ି ଓ ଫିରିଙ୍ଗିଆ, ଏବଂ କୋରାପୁଟ ଜିଲ୍ଲାର ବୋରିଗୁମ୍ମା, ଲମତାପୁଟ ଓ ନନ୍ଦପୁର) କମିଛି ଏବଂ ସବୁ ପୁଷ୍ଟିଶସ୍ୟ ମିସାଇଲେ ଚାଷ କରୁଥିବା କୃଷକ ପରିବାର ପିଛା ଚାଷଜମିର ହାରାହାରି ପରିମାଣ ୮ଟି ବୁକ୍ସରେ (ମାଣ୍ଡିଆ ସହିତ ଜଡ଼ିତ ସାତଟି ବୁକ୍ସ ଓ କୋରାପୁଟ ଜିଲ୍ଲାର ଦାସମନ୍ତପୁର ବୁକ୍ସ) କମିଛି। ଓଡ଼ିଶା ପୁଷ୍ଟିଶସ୍ୟ ମିଶନ୍ରେ ଛଟା ବୁଣା ଚାଷ ଅନ୍ତର୍ଭୁକ୍ତ କରାଯାଇ ନଥିବାରୁ ଏପରି ହୋଇଥିବା ଅନୁମାନ କରାଯାଏ।
- ୧୮. ପ୍ରାରମ୍ଭ ଥିବା ଛିଡ଼ିର ସର୍ବେକ୍ଷଣ କରାଯାଇଥିବା ସମସ୍ତ ୨୭ଟି ବୁକ୍ସରେ ମିଶନ୍ର ପ୍ରଥମ ବର୍ଷରେ ହେକ୍ଟର ପିଛା ଅମଳରେ ଓ ଉତ୍ପାଦିତ ପୁଷ୍ଟିଶସ୍ୟର ହେକ୍ଟର ପିଛା ମୂଲ୍ୟରେ ବୃଦ୍ଧି ପାଇଛି।
- ୧୯. ପ୍ରାରମ୍ଭ ଥିବା ଛିଡ଼ିର ସର୍ବେକ୍ଷଣ କରାଯାଇଥିବା ସମସ୍ତ ୨୭ଟି ବୁକ୍ସରୁ ୨୫ଟି ବୁକ୍ସରେ ମିଶନ୍ର ପ୍ରଥମ ବର୍ଷରେ ଉତ୍ପାଦିତ ପୁଷ୍ଟିଶସ୍ୟର କୃଷକ ପରିବାର ପିଛା ମୂଲ୍ୟ ବୃଦ୍ଧି ପାଇଛି। ଏହା ଦାସମନ୍ତପୁରରେ ପୁଷ୍ଟିଶସ୍ୟକୁ ମିଳିତ ଆକାରରେ ନେଲେ ଏବଂ ଲମତାପୁଟରେ ପୁଷ୍ଟିଶସ୍ୟକୁ ମିଳିତ ଆକାରରେ ନେଲେ ଓ ମାଣ୍ଡିଆ ପାଇଁ ପ୍ରୟତ୍ନ ନୁହେଁ। ଏହି ଦୁଇଟି ବୁକ୍ସରେ ଏହା କୃଷକ ପରିବାର ପିଛା ହାରାହାରି ଚାଷ ଜମି କମିବାରୁ ଘଟିଛି। ଯଦି ହେକ୍ଟର ପିଛା ଅମଳ ଦ୍ୱିତୀୟ ବିକଳ୍ପରୁ ନିଆଯାଏ ତାହାଲେ ଏହି ଦୁଇଟି ବୁକ୍ସରେ ମଧ୍ୟ ଉତ୍ପାଦିତ ପୁଷ୍ଟିଶସ୍ୟର କୃଷକ ପରିବାର ପିଛା ମୂଲ୍ୟ ବୃଦ୍ଧି ପାଇଛି।

*ଉପସଂହାର*

- ୨୦. ଓଡ଼ିଶା ପୁଷ୍ଟିଶସ୍ୟ ମିଶନ୍ର ପ୍ରଥମ ବର୍ଷକୁ (୨୦୧୭-୧୮) ପ୍ରାରମ୍ଭ ଛିଡ଼ିର (୨୦୧୬-୧୭) ସର୍ବେକ୍ଷଣ ସହିତ ତୁଳନାରେ କୃଷକ ପରିବାର ପିଛା ପୁଷ୍ଟିଶସ୍ୟ ଚାଷଜମିର ହାରାହାରି ପରିମାଣ ଦୁଇ-ପଞ୍ଚମାଂଶରୁ ଅଧିକ ବୃଦ୍ଧି ପାଇଛି, ପୁଷ୍ଟିଶସ୍ୟର ହେକ୍ଟର ପିଛା ଅମଳ ଓ ପୁଷ୍ଟିଶସ୍ୟର ହେକ୍ଟର ପିଛା ଉତ୍ପାଦନର ମୂଲ୍ୟ ଦୁଇଗୁଣାରୁ ଅଧିକ ବୃଦ୍ଧି ପାଇଛି, ଏବଂ ପ୍ରତି କୃଷକ ପରିବାର ପିଛା ଉତ୍ପାଦିତ ପୁଷ୍ଟିଶସ୍ୟର ମୂଲ୍ୟ ତିନିଗୁଣାରୁ ଅଧିକ ବୃଦ୍ଧି ପାଇଛି।
- ୨୧. ଓଡ଼ିଶା ପୁଷ୍ଟିଶସ୍ୟ ମିଶନ୍ ଯଥାର୍ଥରେ ପ୍ରଶଂସାର ଯୋଗ୍ୟ। ପ୍ରଥମ ବର୍ଷର ଆକଳନରୁ ମିଶନ୍ର କାର୍ଯ୍ୟକ୍ରମକୁ ଆଗକୁ ନବାକୁ ଦୁଇଟି ଦିଗ ପ୍ରତି ଗୁରୁତ୍ୱ ଦେବାକୁ ହେବ। ପ୍ରଥମରେ, ମାଣ୍ଡିଆ ସହିତ ଅନ୍ୟ ପୁଷ୍ଟିଶସ୍ୟ ଉପରେ ମଧ୍ୟ ଗୁରୁତ୍ୱ ଦେବାକୁ ହେବ। ଦ୍ୱିତୀୟରେ, ରବି ରତ୍ନରେ କିପରି ଅଧିକ ଜମିରେ ପୁଷ୍ଟିଶସ୍ୟ ଚାଷ କରାଯାଇପାରିବ ସେଥିପ୍ରତି ଦୃଷ୍ଟି ଦେବାର ଆବଶ୍ୟକତା ରହିଛି।

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## 1 Introduction

The purpose of this exercise is to arrive at estimates of area, yield, production and value of produce under the "Special Programme for Promotion of Millets in Tribal Areas of Odisha," Odisha Millets Mission in 2017-18, the first year of intervention under the mission (Government of Odisha 2016b).<sup>1</sup> In the first year, Odisha Millets Mission was envisaged in 30 blocks spread across seven districts, but the actual intervention started in 29 blocks (27 in *kharif* 2017 and another two blocks in *rabi* 2017-18). A comparative assessment is also made on some important parameters with the baseline conducted for 2016-17 in 27 blocks where the programme started in *kharif* 2017.<sup>2</sup>

Our first year results are encouraging. It indicates that in 2017-18, compared to the baseline in 2016-17, the average area of cultivation under millets per household has increased by 44 per cent, the yield (quantity produced per hectare) for millets cultivated under Odisha Millets Mission has increased by 120 per cent, and the average value of produce from millets per participant farmer household under the mission (in 2016-17 prices) has increased by 216 per cent. To arrive at these figures, some procedures have been followed, which are elucidated below.

## 2 Crop Cutting Experiments

As a first step, the team examined the scanned copies of crop cutting experiment reports. The criteria for selecting the experiments were (a) legibility, (b) availability of information on block, season, crop, method of cultivation, and area, and (c) authenticity of available information (that is, signature of a district-level official of the agriculture department on the report). A total of 354 experiments have been taken into consideration, of which, 347 are for *kharif* and 7 are for *rabi*, Table 1. The crops for which we have the experiment reports are largely for *mandia* (331 in *kharif* and all 7 in *rabi*) and also for *suan* and *kodo* in *kharif*. The methods of cultivation for which crop cutting experiments were conducted are either system of millet intensification or line transplantation, excluding one, for *mandia*, and only line sowing for *suan* and *kodo*.

Table 1: Season-wise, Crop-wise, Method-wise Number of Crop Cutting Experiments in 2017-18 under Odisha Millets Mission

Method	<i>Kharif Mandia</i>	<i>Kharif Suan</i>	<i>Kharif Kodo</i>	<i>Kharif All</i>	<i>Rabi Mandia</i>	Total (Kh+Ra)
SMI	234 (70.7)	-	-	234 (67.4)	5 (71.4)	239 (67.5)
LT	96 (29.0)	-	-	96 (27.7)	2 (28.6)	98 (27.7)
LS	1 (0.3)	15 (100.0)	1 (100.0)	17 (4.9)	-	17 (4.8)
All Meth	331 (100.0)	15 (100.0)	1 (100.0)	347 (100.0)	7 (100.0)	354 (100.0)

Notes: All Meth is All Methods, Kh+Ra is *Kharif* plus *Rabi*, LS is Line Sowing, LT is Line Transplantation, SMI is System of Millet Intensification, Figures in parenthesis denote per cent across all methods.

A crop cutting experiment is conducted on a 5×5 meter square (or 25 m<sup>2</sup>, or, 1/400<sup>th</sup> of a hectare) patch of the selected plot of land such that yield per hectare from each experiment will be 400 times

<sup>1</sup> For policy briefs related to the programme/mission, see Mishra (2019a,b,c), Mishra and Patra (2017, 2018a,b), and Nayak, Das and Mishra (2019). For write-ups in *Outlook Poshan*, see Kanungo (2019a,b) and Samal (2019).

<sup>2</sup> For baseline reports at the state level see NCDS (2019h) and NCDS Study Team (2019) and for district specific reports see NCDS (2019a,b,c,d,e,f,g).

the dry weight of the produce from that experiment (for conducting a crop cutting experiment, a plot has to be greater than or at least equal to 25 m<sup>2</sup>). Tables 2(a) to 2(d), provides block-season-crop-method-specific details of the crop cutting experiments - number of experiments, sum of area of all the experimental plots, sum of production from all experimental plots extrapolated from the produce of 25 m<sup>2</sup> patch for each plot, average yield (weighted average with weights being the share of area for each plot), minimum yield, and maximum yield.

Table 2: Crop Cutting Experiment, 2017-18  
(a) *Kharif: Mandia* - System of Millet Intensification

Season	Crop	Method	District/State	Block	N <sub>c</sub>	Ha	Q	Y_avg	Y_min	Y_max	
<i>Kharif</i>	<i>Mandia</i>	System of Millet Intensi- fication, SMI	Gajapati	Gumma	16	9.4	119.1	12.7	10.4	24.0	
				Mohana	2	0.6	18.4	30.5	28.8	34.0	
				R Udayagiri	4	1.6	24.0	15.0	12.6	18.8	
				Rayagada	-	-	-	-	-	-	
				Total	22	11.6	161.5	13.9	10.4	34.0	
			Kalahandi	Total	-	-	-	-	-	-	
				Kandhamal	Daringbadi	2	0.4	17.0	42.0	33.8	50.1
					Kotagarh	3	0.8	35.8	44.2	23.0	61.8
					Phiringia	-	-	-	-	-	-
					Raikia	3	0.9	25.7	27.6	21.0	30.6
			Total	8	2.1	78.4	36.6	21.0	61.8		
			Koraput	Boipariguda	31	14.8	341.1	23.1	12.8	33.6	
				Borigumma	14	5.9	123.7	21.1	17.1	31.6	
				Dasamantapur	21	10.1	239.2	23.6	18.4	29.4	
				Kundra	9	2.4	50.8	21.1	8.5	30.2	
				Lamtaput	40	9.8	264.8	27.0	16.8	32.8	
				Nandapur	8	3.0	83.0	27.3	23.4	32.0	
				Semiliguda	20	12.8	322.7	25.2	20.4	32.4	
				Total	143	58.8	1425.2	24.2	8.5	33.6	
			Malkangiri	Chitrakonda	2	0.8	17.1	21.1	21.0	21.2	
				Khairput	25	12.3	241.5	19.6	10.7	33.8	
				Korukonda	7	3.2	49.2	15.2	12.4	18.0	
				Mathili	2	0.8	14.2	17.6	17.2	18.0	
				Total	36	17.2	322.0	18.7	10.7	33.8	
			Nuapada	Boden	12	12.5	148.2	11.9	8.8	18.0	
				Komana	6	5.6	115.9	20.7	18.4	28.0	
				Sinapali	-	-	-	-	-	-	
Total	18	18.1		264.0	14.6	8.8	28.0				
Rayagada	Gudari	-	-	-	-	-	-				
	Gunupur	4	1.6	32.8	20.3	17.5	23.1				
	Rayagada	3	0.8	25.8	31.9	25.4	34.6				
	Total	7	2.4	58.6	24.1	17.5	34.6				
Odisha	All Total	234	110.3	2309.8	20.9	8.5	61.8				

Note: As in Table 1. N<sub>c</sub> is number of crop cutting experiments, Ha is area in hectare - sum of area for all plots from where a patch of 25 square meter was chosen for the experiment, Q is production in quintal or sum of production from total area of experimental plots extrapolated from production in 25 square metre patch, Y\_avg is average yield, Y\_min is minimum yield from all experimental plots, Y\_max is maximum yield from all experimental plots. Yield is Q/Ha Figures rounded off to first decimal.



Table 2(a) indicates that for *kharif mandia* under system of millet intensification there are 234 crop cutting experiments from 21 blocks. The yield from the experiments range from a minimum of 8.5 quintals per hectare in Kundra of Koraput to a maximum of 61.8 quintals per hectare in Kotagarh of Kandhamal and the average yield is 20.9 quintals per hectare.

Table 2(b) indicates that for *kharif mandia* under line transplanted there are 96 crop cutting experiments from 13 blocks. The yield ranges from a minimum of 8.0 quintals per hectare in Gumma of Gajapati to a maximum of 34.4 quintals per hectare in Mohana of Gajapati. The latter is also from a single experiment. And, the average yield is 12.7 quintals per hectare.

Table 2: Crop Cutting Experiment, 2017-18  
(b) *Kharif: Mandia* - Line Transplantation

Season	Crop	Method	District/State	Block	N <sub>c</sub>	Ha	Q	Y_avg	Y_min	Y_max	
<i>Kharif</i>	<i>Mandia</i>	Line Trans-plantation, LT	Gajapati	Gumma	14	3.4	29.2	8.6	8.0	8.8	
				Mohana	1	0.2	6.9	34.4	34.4	34.4	
				R Udayagiri	26	10.4	101.0	9.7	9.0	12.8	
				Rayagada	-	-	-	-	-	-	
				Total	41	14.0	137.1	9.8	8.0	34.4	
			Kalahandi	Bhawanipatna	-	-	-	-	-	-	-
				Lanjigarh	3	1.9	19.0	10.0	9.6	10.8	
				Narla	-	-	-	-	-	-	
				Th Rampur	-	-	-	-	-	-	
				Total	3	1.9	19.0	10.0	9.6	10.8	
			Kandhamal	Daringbadi	2	0.4	8.4	20.8	16.5	25.1	
				Kotagarh	1	0.2	6.7	33.0	33.0	33.0	
				Phiringia	1	0.4	10.0	24.6	24.6	24.6	
				Raikia	2	0.5	10.6	20.2	19.5	21.4	
				Total	6	1.5	35.7	23.2	16.5	33.0	
			Koraput	Total	-	-	-	-	-	-	
			Malkangiri	Chitrakonda	5	2.4	55.9	23.0	17.6	30.0	
				Khairput	12	5.1	84.3	16.7	9.2	32.0	
				Korukonda	12	5.1	58.6	11.6	10.4	14.0	
				Mathili	16	9.3	106.5	11.4	10.6	12.8	
				Total	45	21.9	305.3	14.0	9.2	32.0	
			Nuapada	Total	-	-	-	-	-	-	
			Rayagada	Gudari	-	-	-	-	-	-	
				Gunupur	-	-	-	-	-	-	
				Rayagada	1	0.2	2.6	12.8	12.8	12.8	
				Total	1	0.2	2.6	12.8	12.8	12.8	
			Odisha	All Total	96	39.5	499.7	12.7	8.0	34.4	

Note: As in Table 2(a).

Table 2(c) indicates the crop cutting experiment details in *kharif* season for *mandia*, *suan* and *kodo* under line sowing. *Mandia* under line sowing has only one crop cutting experiment from Mohana of Gajapati with a yield 21.2 quintals per hectare.

*Suan* under line sowing has 15 crop cutting experiments from two blocks in Kalahandi district. The yields range from a minimum of 4.6 quintals per hectare in Narla block to a maximum of 15.2 quintals per hectare in Lanjigarh block. And, the average yield is 10.3 quintals per hectare.

*Kodo* under line sowing has only one crop cutting experiment from Narla of Kalahandi. Its yield is 8.8 quintals per hectare.

Table 2: Crop Cutting Experiment, 2017-18  
(c) *Kharif: Mandia, Suan, & Kodo* - Line Sowing

Season	Crop	Method	District/State	Block	N <sub>c</sub>	Ha	Q	Y_avg	Y_min	Y_max	
<i>Kharif</i>	<i>Mandia</i>	Line Sowing, LS	Gajapati	Gumma	-	-	-	-	-	-	
				Mohana	1	0.2	4.3	21.2	21.2	21.2	
				R Udayagiri	-	-	-	-	-	-	
				Rayagada	-	-	-	-	-	-	
				Total	1	0.2	4.3	21.2	21.2	21.2	
			Kalahandi	Total	-	-	-	-	-	-	
				Total	-	-	-	-	-	-	
			Kandhamal	Total	-	-	-	-	-	-	
				Total	-	-	-	-	-	-	
			Koraput	Total	-	-	-	-	-	-	
				Total	-	-	-	-	-	-	
			Malkangiri	Total	-	-	-	-	-	-	
				Total	-	-	-	-	-	-	
			Nuapada	Total	-	-	-	-	-	-	
Total	-	-		-	-	-	-				
Rayagada	Total	-	-	-	-	-	-				
	Total	-	-	-	-	-	-				
Odisha	All Total	1	0.2	4.3	21.2	21.2	21.2				
	Total	-	-	-	-	-	-				
<i>Kharif</i>	<i>Suan</i>	LS	Gajapati	Total	-	-	-	-	-	-	
				Total	-	-	-	-	-	-	
			Kalahandi	Bhawanipatna	-	-	-	-	-	-	-
				Lanjigarh	9	8.3	89.7	10.8	8.8	15.2	
				Narla	6	2.0	16.8	8.3	4.6	12.4	
				Th Rampur	-	-	-	-	-	-	
				Total	15	10.3	106.5	10.3	4.6	15.2	
			Kandhamal	Total	-	-	-	-	-	-	
				Total	-	-	-	-	-	-	
			Koraput	Total	-	-	-	-	-	-	
				Total	-	-	-	-	-	-	
			Malkangiri	Total	-	-	-	-	-	-	
				Total	-	-	-	-	-	-	
			Nuapada	Total	-	-	-	-	-	-	
Total	-	-		-	-	-	-				
Rayagada	Total	-	-	-	-	-	-				
	Total	-	-	-	-	-	-				
Odisha	All Total	15	10.3	106.5	10.3	4.6	15.2				
	Total	-	-	-	-	-	-				
<i>Kharif</i>	<i>Kodo</i>	LS	Gajapati	Total	-	-	-	-	-	-	
				Total	-	-	-	-	-	-	
			Kalahandi	Bhawanipatna	-	-	-	-	-	-	
				Lanjigarh	-	-	-	-	-	-	
				Narla	1	0.2	1.8	8.8	8.8	8.8	
				Th Rampur	-	-	-	-	-	-	
			Total	1	0.2	1.8	8.8	8.8	8.8		
			Kandhamal	Total	-	-	-	-	-	-	
				Total	-	-	-	-	-	-	
			Koraput	Total	-	-	-	-	-	-	
				Total	-	-	-	-	-	-	
			Malkangiri	Total	-	-	-	-	-	-	
				Total	-	-	-	-	-	-	
			Nuapada	Total	-	-	-	-	-	-	
Total	-	-		-	-	-	-				
Rayagada	Total	-	-	-	-	-	-				
	Total	-	-	-	-	-	-				
Odisha	All Total	1	0.2	1.8	8.8	8.8	8.8				
	Total	-	-	-	-	-	-				

Note: As in Table 2(a).

Table 2(d) indicates crop cutting experiment details in *rabi* season for *mandia*. There are five experiments for system of millet intensification from three blocks (Boipariguda in Koraput, and Boden and Sinapali in Nuapada). The yield ranges from a minimum of 8.0 quintals per hectare in both the blocks of Nuapada to a maximum of 28.8 quintals per hectare in Boipariguda. And, the average yield is 15.3 quintals per hectare.

There are two crop cutting experiments for *rabi mandia* under line transplanted and both are from Sinapali in Nuapada. The one with minimum yield is 8.0 quintals per hectare and the one with maximum yield is 15.6 quintals per hectare, and their average yield is 12.6 quintals per hectare.

Table 2: Crop Cutting Experiment, 2017-18  
(d) *Rabi: Mandia - System of Millet Intensification and Line Transplantation*

Season	Crop	Method	District/State	Block	N <sub>c</sub>	Ha	Q	Y_avg	Y_min	Y_max	
<i>Rabi</i>	<i>Mandia</i>	System of Millet Intensification, SMI	Gajapati	Total	-	-	-	-	-	-	
			Kalahandi	Total	-	-	-	-	-	-	
			Kandhamal	Total	-	-	-	-	-	-	
			Koraput	Boipariguda	1	0.4	11.7	28.8	28.8	28.8	
				Borigumma	-	-	-	-	-	-	
				Dasamantapur	-	-	-	-	-	-	
				Kundra	-	-	-	-	-	-	
				Lamtaput	-	-	-	-	-	-	
				Nandapur	-	-	-	-	-	-	
				Semiliguda	-	-	-	-	-	-	
		Total	1	0.4	11.7	28.8	28.8	28.8			
		Malkangiri	Total	-	-	-	-	-	-		
		Nuapada	Boden	3	1.0	13.0	12.8	8.0	17.6		
			Komana	-	-	-	-	-	-		
			Sinapali	1	0.4	3.2	8.0	8.0	8		
			Total	4	1.4	16.2	11.4	8.0	17.6		
		Rayagada	Total	-	-	-	-	-	-		
		Odisha	All Total	5	1.8	27.8	15.3	8.0	28.8		
		<i>Rabi</i>	<i>Mandia</i>	Line Transplantation, LT	Gajapati	Total	-	-	-	-	-
					Kalahandi	Total	-	-	-	-	-
Kandhamal	Total				-	-	-	-	-		
Koraput	Total				-	-	-	-	-		
Malkangiri	Total				-	-	-	-	-		
Nuapada	Boden				-	-	-	-	-	-	
	Komana				-	-	-	-	-	-	
	Sinapali				2	1.0	12.7	12.6	8.0	15.6	
	Total				2	1.0	12.7	12.6	8.0	15.6	
Rayagada	Total				-	-	-	-	-	-	
Odisha	All Total	2	1.0	12.7	12.6	8.0	15.6				

Note: As in Table 2(a)

### 3 Estimating Production

There are two competing concerns in our use of crop cutting experiment. On the one hand, the first year of Odisha Millets Mission intervention had a number of doubting Thomases, including among the line department staff, as the programme did not have the usual input-intensive components (no fertilizer, no pesticides and no certified seeds) and instead relied on a knowledge-intensive agroecological approach that superimposed science with tradition (Government of Odisha 2016a, 2016b; Kanungo 2019; Mishra 2018; Mishra et al. 2013; NCDS Study Team 2019; Raina 2020; Raina et al. 2015). On the other hand, any intervention that involved the stakeholders, including the officials assigned to oversee a programme, may have a selection bias to pick up crop cutting experiment on plots where yields are likely to be higher (Boyce 1987). In spite of the doubting

Thomases, by taking the latter concern in mind, we used the minimum yield from the crop cutting experiments for each block controlled for season, crop, and method of cultivation. If a particular block did not have any experiment then we used the minimum yield for the district and if the district also did not have any experiment then we used the minimum yield for the state.

Table 3: Area, Yield and Production of Millets under Odisha Millets Mission, 2017-18  
(a) *Mandia (Kharif)*, System of Millet Intensification and Line Transplantation

District/State	Block	System of Millet Intensification				Line Transplantation			
		N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q	N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q
Gajapati	Gumma	122	63.94	10.40	665.01	224	51.96	8.00	415.71
	Mohana	60	22.46	28.80	646.92	169	62.95	34.40	2165.58
	R Udayagiri	83	30.73	12.60	387.24	375	145.01	9.00	1305.07
	Rayagada	48	34.40	10.40	357.75	90	49.37	8.00	394.98
	Total	313	151.54	13.57	2056.91	858	309.30	13.84	4281.34
Kalahandi	Bhawanipatna	-	-	-	-	-	-	-	-
	Lanjigarh	25	8.00	8.48	67.84	101	34.20	9.60	328.32
	Narla	58	33.50	8.48	284.08	0	0.00	0.00	0.00
	Th Rampur	-	-	-	-	-	-	-	-
	Total	83	41.50	8.48	351.92	101	34.20	9.60	328.32
Kandhamal	Daringbadi	348	22.23	33.76	750.64	-	-	-	-
	Kotagarh	73	41.50	23.00	954.50	24	14.50	33.00	478.50
	Phiringia	-	-	-	-	52	13.20	24.60	324.72
	Raikia	1	0.80	21.04	16.83	140	64.11	19.52	1251.45
	Total	422	64.53	26.68	1721.98	216	91.81	22.38	2054.67
Koraput	Boipariguda	10	5.26	12.80	67.34	350	147.71	8.00	1181.71
	Borigumma	19	7.69	17.09	131.39	279	117.36	8.00	938.89
	Dasamantapur	133	48.74	18.40	896.87	220	101.38	8.00	811.04
	Kundra	174	85.57	8.48	725.62	65	38.24	8.00	305.95
	Lamtaput	267	74.89	16.80	1258.19	459	99.05	8.00	792.38
	Nandapur	381	154.19	23.40	3608.01	119	48.16	8.00	385.27
	Semiliguda	48	63.84	20.40	1302.25	136	141.66	8.00	1133.27
	Total	1032	440.18	18.15	7989.68	1628	693.56	8.00	5548.51
Malkangiri	Chitrakonda	12	13.50	21.00	283.50	362	382.00	17.57	6710.98
	Khairput	171	175.50	10.73	1882.76	132	132.00	9.24	1219.68
	Korukonda	206	225.00	12.40	2790.00	169	196.00	10.40	2038.40
	Mathili	26	38.50	17.20	662.20	480	532.00	10.60	5639.20
	Total	415	452.50	12.42	5618.46	1143	1242.00	12.57	15608.26
Nuapada	Boden	312	197.00	8.80	1733.60	25	11.30	8.00	90.40
	Komana	59	39.04	18.40	718.34	32	13.60	8.00	108.80
	Sinapali	40	15.75	8.80	138.60	104	28.62	8.00	228.96
	Total	411	251.79	10.29	2590.54	161	53.52	8.00	428.16
Rayagada	Gudari	109	119.50	17.52	2093.64	21	25.00	12.80	320.00
	Gunupur	53	70.00	17.52	1226.40	256	324.00	12.80	4147.20
	Rayagada	72	70.00	25.36	1775.20	184	168.00	12.80	2150.40
	Total	234	259.50	19.63	5095.24	461	517.00	12.80	6617.60
Odisha	All Total	2910	1661.54	15.30	25424.73	4568	2941.39	11.85	34866.86

Note: N<sub>p</sub> is number of farmer households who cultivated under the mission, Ha is area in hectare, Q is production in quintal, Q/Ha is yield (production in quintal per hectare). N<sub>p</sub> may differ from the number in the list who received incentives as participants under the mission.

With this assumption, we estimate block-season-crop-method-specific production for the area cultivated in each of these under Odisha Millets Mission, which was obtained from tracking sheets provided by the Programme Secretariat and these numbers may not match with the final list of those who received incentives as a participant under the mission. The area, yield and production (estimates) of millets in 2017-18 under Odisha Millets Mission are given in Tables 3(a) to 3(m).

Table 3: Area, Yield and Production of Millets under Odisha Millets Mission, 2017-18  
(b) *Mandia (Kharif)*, Line Sowing and All Methods

District/State	Block	Line Sowing				All Methods			
		N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q	N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q
Gajapati	Gumma	-	-	-	-	346	115.91	9.32	1080.72
	Mohana	133	44.94	21.20	952.66	362	130.35	28.88	3765.16
	R Udayagiri	65	19.00	21.20	402.84	523	194.74	10.76	2095.15
	Rayagada	-	-	-	-	138	83.77	8.99	752.73
	Total	198	63.94	21.20	1355.50	1369	524.77	14.66	7693.76
Kalahandi	Bhawanipatna	-	-	-	-	-	-	-	-
	Lanjigarh	-	-	-	-	126	42.20	9.39	396.16
	Narla	-	-	-	-	58	33.50	8.48	284.08
	Th Rampur	-	-	-	-	-	-	-	-
	Total	-	-	-	-	184	75.70	8.99	680.24
Kandhamal	Daringbadi	-	-	-	-	348	22.23	33.76	750.64
	Kotagarh	-	-	-	-	97	56.00	25.59	1433.00
	Phiringia	-	-	-	-	52	13.20	24.60	324.72
	Raikia	-	-	-	-	141	64.91	19.54	1268.28
	Total	-	-	-	-	638	156.35	24.16	3776.65
Koraput	Boipariguda	-	-	-	-	360	152.97	8.17	1249.05
	Borigumma	-	-	-	-	298	125.05	8.56	1070.28
	Dasamantapur	-	-	-	-	353	150.12	11.38	1707.91
	Kundra	-	-	-	-	239	123.81	8.33	1031.57
	Lamtaput	-	-	-	-	726	173.94	11.79	2050.57
	Nandapur	-	-	-	-	500	202.35	19.73	3993.28
	Semiliguda	-	-	-	-	184	205.49	11.85	2435.52
	Total	-	-	-	-	2660	1133.74	11.94	13538.18
Malkangiri	Chitrakonda	-	-	-	-	374	395.50	17.69	6994.48
	Khairput	-	-	-	-	303	307.50	10.09	3102.44
	Korukonda	-	-	-	-	375	421.00	11.47	4828.40
	Mathili	-	-	-	-	506	570.50	11.05	6301.40
	Total	-	-	-	-	1558	1694.50	12.53	21226.72
Nuapada	Boden	-	-	-	-	337	208.30	8.76	1824.00
	Komana	-	-	-	-	91	52.64	15.71	827.14
	Sinapali	-	-	-	-	144	44.37	8.28	367.56
	Total	-	-	-	-	572	305.31	9.89	3018.70
Rayagada	Gudari	-	-	-	-	130	144.50	16.70	2413.64
	Gunupur	-	-	-	-	309	394.00	13.64	5373.60
	Rayagada	-	-	-	-	256	238.00	16.49	3925.60
	Total	-	-	-	-	695	776.50	15.08	11712.84
Odisha	All Total	198	63.94	21.20	1355.50	7676	4666.87	13.21	61647.08

Note: As in Table 3(a).

Tables 3(a) and 3(b) indicate the following. *Kharif mandia* under system of millet intensification was cultivated by 2,910 farmer households in 1,662 hectares with a yield of 15.3 quintals per hectare and production of 25,425 quintals. *Kharif mandia* under line transplantation was cultivated by 4,568 farmer households in 2,941 hectares with a yield of 11.85 quintals per hectare and production of 24,867 quintals. *Kharif mandia* under line sowing was cultivated by 198 farmer households in 63.94 hectares with a yield of 21.2 quintals per hectare and production of 1,356 quintals. *Kharif mandia* under all methods was cultivated by 7,676 farmer households in 4,667 hectares with a yield of 13.21 quintals per hectare and production of 61,647 quintals.

Table 3: Area, Yield and Production of Millets under Odisha Millets Mission, 2017-18  
(c) *Mandia (Rabi)*, System of Millet Intensification and Line Transplantation

District/State	Block	System of Millet Intensification				Line Transplantation			
		N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q	N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q
Gajapati	Gumma	-	-	-	-	264	58.20	8.00	465.60
	Mohana	23	5.40	8.00	43.20	-	-	-	-
	R Udayagiri	23	10.00	8.00	80.00	-	-	-	-
	Rayagada	26	9.71	8.00	77.70	74	27.11	8.00	216.92
	Total	72	25.11	8.00	200.90	338	85.31	8.00	682.52
Kalahandi	Bhawanipatna	7	2.02	8.00	16.19	-	-	-	-
	Lanjigarh	8	3.24	8.00	25.90	-	-	-	-
	Narla	14	4.65	8.00	37.23	-	-	-	-
	Th Rampur	7	4.05	8.00	32.38	-	-	-	-
	Total	36	13.96	8.00	111.70	-	-	-	-
Kandhamal	Daringbadi	4	0.40	8.00	3.24	-	-	-	-
	Kotagarh	5	2.63	8.00	21.04	4	1.42	8.00	11.33
	Phiringia	6	1.21	8.00	9.71	-	-	-	-
	Raikia	15	6.68	8.00	53.42	41	11.94	8.00	95.51
	Total	30	10.93	8.00	87.41	45	13.35	8.00	106.84
Koraput	Boipariguda	4	6.37	28.80	183.44	59	83.86	8.00	670.91
	Borigumma	-	-	-	-	-	-	-	-
	Dasamantapur	-	-	-	-	-	-	-	-
	Kundra	17	15.18	28.80	437.20	7	4.88	8.00	39.07
	Lamtaput	-	-	-	-	-	-	-	-
	Nandapur	-	-	-	-	-	-	-	-
	Semiliguda	-	-	-	-	-	-	-	-
Total	21	21.55	28.80	620.64	66	88.75	8.00	709.98	
Malkangiri	Total	-	-	-	-	-	-	-	-
Nuapada	Boden	8	2.02	8.00	16.19	0	0.00	0.00	0.00
	Komana	-	-	-	-	-	-	-	-
	Sinapali	24	3.93	8.00	31.40	16	2.15	8.00	17.22
	Total	32	5.95	8.00	47.59	16	2.15	8.00	17.22
Rayagada	Gudari	26	14.57	8.00	116.55	0	0.00	0.00	0.00
	Gunupur	-	-	-	-	-	-	-	-
	Rayagada	33	11.74	8.00	93.89	2	0.81	8.00	6.48
	Total	59	26.31	8.00	210.44	2	0.81	8.00	6.48
Odisha	All Total	250	103.81	12.32	1278.68	467	190.38	8.00	1523.03

Note: As in Table 3(a).

Tables 3(c) and 3(d) indicate the following. *Rabi mandia* under system of millet intensification was cultivated by 250 farmer households in 103.81 hectares with a yield of 12.32 quintals per hectare and production of 1,279 quintals. *Rabi mandia* under line transplantation was cultivated by 467 farmer households in 190.38 hectares with a yield of 8.0 quintals per hectare and production of 1,523 quintals. *Rabi mandia* under all methods was cultivated by 713 farmer households in 294.18 hectares with a yield of 9.52 quintals per hectare and production of 2802 quintals.

Table 3: Area, Yield and Production of Millets under Odisha Millets Mission, 2017-18  
(d) *Mandia (Rabi)*, Line Sowing and All Methods

District/State	Block	Line Sowing				All Methods			
		N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q	N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q
Gajapati	Gumma	-	-	-	-	264	58.20	8.00	465.60
	Mohana	-	-	-	-	23	5.40	8.00	43.20
	R Udayagiri	-	-	-	-	23	10.00	8.00	80.00
	Rayagada	-	-	-	-	100	36.83	8.00	294.62
	Total	-	-	-	-	410	110.43	8.00	883.42
Kalahandi	Bhawanipatna	-	-	-	-	7	2.02	8.00	16.19
	Lanjigarh	-	-	-	-	8	3.24	8.00	25.90
	Narla	-	-	-	-	14	4.65	8.00	37.23
	Th Rampur	-	-	-	-	7	4.05	8.00	32.38
	Total	-	-	-	-	36	13.96	8.00	111.70
Kandhamal	Daringbadi	-	-	-	-	4	0.40	8.00	3.24
	Kotagarh	-	-	-	-	9	4.05	8.00	32.38
	Phiringia	-	-	-	-	6	1.21	8.00	9.71
	Raikia	-	-	-	-	56	18.62	8.00	148.93
	Total	-	-	-	-	75	24.28	8.00	194.25
Koraput	Boipariguda	-	-	-	-	63	90.23	9.47	854.35
	Borigumma	-	-	-	-	-	-	-	-
	Dasamantapur	-	-	-	-	-	-	-	-
	Kundra	-	-	-	-	24	20.06	23.74	476.26
	Lamtaput	-	-	-	-	-	-	-	-
	Nandapur	-	-	-	-	-	-	-	-
	Semiliguda	-	-	-	-	-	-	-	-
	Total	-	-	-	-	87	110.30	12.06	1330.62
Malkangiri	Total	-	-	-	-	-	-	-	
Nuapada	Boden	-	-	-	-	8	2.02	8.00	16.19
	Komana	-	-	-	-	-	-	-	-
	Sinapali	-	-	-	-	36	6.08	8.00	48.63
	Total	-	-	-	-	44	8.10	8.00	64.82
Rayagada	Gudari	-	-	-	-	26	14.57	8.00	116.55
	Gunupur	-	-	-	-	-	-	-	-
	Rayagada	-	-	-	-	35	12.55	8.00	100.36
	Total	-	-	-	-	61	27.11	8.00	216.92
Odisha	All Total	-	-	-	-	713	294.18	9.52	2801.71

Note: As in Table 3(a).

Table 3: Area, Yield and Production of Millets under Odisha Millets Mission, 2017-18  
(e) *Mandia (Kharif+Rabi)*, System of Millet Intensification and Line Transplantation

District/State	Block	System of Millet Intensification				Line Transplantation			
		N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q	N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q
Gajapati	Gumma	122	63.94	10.40	665.01	465	110.16	8.00	881.31
	Mohana	82	27.86	24.77	690.12	169	62.95	34.40	2165.58
	R Udayagiri	105	40.73	11.47	467.24	375	145.01	9.00	1305.07
	Rayagada	74	44.11	9.87	435.45	164	76.49	8.00	611.90
	Total	383	176.65	12.78	2257.82	1173	394.61	12.58	4963.86
Kalahandi	Bhawanipatna	7	2.02	8.00	16.19	-	-	-	-
	Lanjigarh	33	11.24	8.34	93.74	101	34.20	9.60	328.32
	Narla	72	38.15	8.42	321.31	-	-	-	-
	Th Rampur	7	4.05	8.00	32.38	-	-	-	-
	Total	119	55.46	8.36	463.62	101	34.20	9.60	328.32
Kandhamal	Daringbadi	352	22.64	33.30	753.88	-	-	-	-
	Kotagarh	78	44.13	22.11	975.54	28	15.92	30.78	489.83
	Phiringia	6	1.21	8.00	9.71	52	13.20	24.60	324.72
	Raikia	16	7.48	9.40	70.25	181	76.05	17.71	1346.96
	Total	452	75.46	23.98	1809.39	261	105.17	20.55	2161.51
Koraput	Boipariguda	14	11.63	21.56	250.78	408	231.58	8.00	1852.62
	Borigumma	19	7.69	17.09	131.39	279	117.36	8.00	938.89
	Dasamantapur	133	48.74	18.40	896.87	220	101.38	8.00	811.04
	Kundra	191	100.75	11.54	1162.82	72	43.13	8.00	345.02
	Lamtapur	267	74.89	16.80	1258.19	459	99.05	8.00	792.38
	Nandapur	381	154.19	23.40	3608.01	119	48.16	8.00	385.27
	Semiliguda	48	63.84	20.40	1302.25	136	141.66	8.00	1133.27
	Total	1053	461.73	18.65	8610.31	1693	782.31	8.00	6258.48
Malkangiri	Chitrakonda	12	13.50	21.00	283.50	362	382.00	17.57	6710.98
	Khairput	171	175.50	10.73	1882.76	132	132.00	9.24	1219.68
	Korukonda	206	225.00	12.40	2790.00	169	196.00	10.40	2038.40
	Mathili	26	38.50	17.20	662.20	480	532.00	10.60	5639.20
	Total	415	452.50	12.42	5618.46	1143	1242.00	12.57	15608.26
Nuapada	Boden	317	199.02	8.79	1749.79	25	11.30	8.00	90.40
	Komana	59	39.04	18.40	718.34	32	13.60	8.00	108.80
	Sinapali	64	19.68	8.64	170.00	120	30.77	8.00	246.18
	Total	440	257.74	10.24	2638.13	177	55.67	8.00	445.38
Rayagada	Gudari	135	134.07	16.49	2210.19	21	25.00	12.80	320.00
	Gunupur	53	70.00	17.52	1226.40	256	324.00	12.80	4147.20
	Rayagada	103	81.74	22.87	1869.09	186	168.81	12.78	2156.88
	Total	291	285.81	18.56	5305.68	463	517.81	12.79	6624.08
Odisha	All Total	3153	1765.35	15.13	26703.41	5011	3131.77	11.62	36389.89

Note: As in Table 3(a).

Tables 3(e) and 3(f) indicate the following. *Mandia (kharif+rabi)* under system of millet intensification was cultivated by 3,153 farmer households in 1,765 hectares with a yield of 15.13 quintals per hectare and production of 26,703 quintals. *Mandia (kharif+rabi)* under line transplantation was cultivated by 5,011 farmer households in 3,132 hectares with a yield of 11.62 quintals per hectare and production of 36,390 quintals. *Mandia (kharif+rabi)* under line sowing was



cultivated by 198 farmer households in 63.94 hectares with a yield of 21.2 quintals per hectare and production of 1,356 quintals. *Mandia (kharif+rabi)* under all methods was cultivated by 8,348 farmer households in 4,961 hectares with a yield of 12.99 quintals per hectare and production of 64,449 quintals.

Table 3: Area, Yield and Production of Millets under Odisha Millets Mission, 2017-18  
(f) *Mandia (Kharif+Rabi)*, Line Sowing and All Methods

District/State	Block	Line Sowing				All Methods			
		N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q	N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q
Gajapati	Gumma	-	-	-	-	584	174.11	8.88	1546.32
	Mohana	133	44.94	21.20	952.66	384	135.75	28.05	3808.36
	R Udayagiri	65	19.00	21.20	402.84	542	204.74	10.62	2175.15
	Rayagada	-	-	-	-	238	120.60	8.68	1047.35
	Total	198	63.94	21.20	1355.50	1748	635.20	13.50	8577.18
Kalahandi	Bhawanipatna	-	-	-	-	7	2.02	8.00	16.19
	Lanjigarh	-	-	-	-	134	45.44	9.29	422.06
	Narla	-	-	-	-	72	38.15	8.42	321.31
	Th Rampur	-	-	-	-	7	4.05	8.00	32.38
	Total	-	-	-	-	220	89.66	8.83	791.94
Kandhamal	Daringbadi	-	-	-	-	352	22.64	33.30	753.88
	Kotagarh	-	-	-	-	106	60.05	24.40	1465.38
	Phiringia	-	-	-	-	58	14.41	23.20	334.43
	Raikia	-	-	-	-	197	83.53	16.97	1417.21
	Total	-	-	-	-	713	180.63	21.98	3970.90
Koraput	Boipariguda	-	-	-	-	422	243.21	8.65	2103.40
	Borigumma	-	-	-	-	298	125.05	8.56	1070.28
	Dasamantapur	-	-	-	-	353	150.12	11.38	1707.91
	Kundra	-	-	-	-	260	143.88	10.48	1507.84
	Lamtaput	-	-	-	-	726	173.94	11.79	2050.57
	Nandapur	-	-	-	-	500	202.35	19.73	3993.28
	Semiliguda	-	-	-	-	184	205.49	11.85	2435.52
	Total	-	-	-	-	2743	1244.04	11.95	14868.80
Malkangiri	Chitrakonda	-	-	-	-	374	395.50	17.69	6994.48
	Khairput	-	-	-	-	303	307.50	10.09	3102.44
	Korukonda	-	-	-	-	375	421.00	11.47	4828.40
	Mathili	-	-	-	-	506	570.50	11.05	6301.40
	Total	-	-	-	-	1558	1694.50	12.53	21226.72
Nuapada	Boden	-	-	-	-	341	210.32	8.75	1840.19
	Komana	-	-	-	-	91	52.64	15.71	827.14
	Sinapali	-	-	-	-	184	50.45	8.25	416.19
	Total	-	-	-	-	616	313.41	9.84	3083.51
Rayagada	Gudari	-	-	-	-	156	159.07	15.91	2530.19
	Gunupur	-	-	-	-	309	394.00	13.64	5373.60
	Rayagada	-	-	-	-	285	250.55	16.07	4025.96
	Total	-	-	-	-	750	803.61	14.85	11929.76
Odisha	All Total	198	63.94	21.20	1355.50	8348	4961.06	12.99	64448.80

Note: As in Table 3(a).

Table 3: Area, Yield and Production of Millets under Odisha Millets Mission, 2017-18  
(g) *Suan (Kharif)* in Kalahandi, System of Millet Intensification and Line Transplantation

District/State	Block	System of Millet Intensification				Line Transplantation			
		N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q	N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q
Kalahandi	Bhawanipatna	-	-	-	-	-	-	-	-
	Lanjigarh	-	-	-	-	-	-	-	-
	Narla	1	0.50	4.60	2.30	-	-	-	-
	Th Rampur	-	-	-	-	-	-	-	-
	Total	1	0.50	4.60	2.30	-	-	-	-

Note: As in Table 3(a). As per tracking sheets, area under *suan* cultivation was available only for Kalahandi in *kharif* 2017-18 under Odisha Millets Mission. Hence, the values for Odisha will be same as that for Kalahandi.

Tables 3(g) and 3(h) indicate the following. *Kharif suan* under system of millet intensification was cultivated by one farmer household in 0.5 hectare with a yield of 4.6 quintals per hectare and production of 2.3 quintals. *Kharif suan* under line sowing was cultivated by 306 farmer households in 211.0 hectares with a yield of 6.55 quintals per hectare and production of 1,382 quintals. *Kharif suan* under all methods was cultivated by 307 farmer households in 211.5 hectares with a yield of 6.55 quintals per hectare and production of 1,385 quintals. There was no *suan* production in *rabi* under Odisha Millets Mission.

Table 3: Area, Yield and Production of Millets under Odisha Millets Mission, 2017-18  
(h) *Suan (Kharif)* in Kalahandi, Line Sowing and All Methods

District/State	Block	Line Sowing				All Methods			
		N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q	N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q
Kalahandi	Bhawanipatna	-	-	-	-	-	-	-	-
	Lanjigarh	156	98.00	8.80	862.40	156	98.00	8.80	862.40
	Narla	150	113.00	4.60	519.80	151	113.50	4.60	522.10
	Th Rampur	-	-	-	-	-	-	-	-
	Total	306	211.00	6.55	1382.20	307	211.50	6.55	1384.50

Note: As in Table 3(a) and 3(g).

Table 3: Area, Yield and Production of Millets under Odisha Millets Mission, 2017-18  
(i) *Kodo (Kharif)* in Kalahandi, Line Sowing and All Methods

District/State	Block	Line Sowing				All Methods			
		N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q	N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q
Kalahandi	Bhawanipatna	-	-	-	-	-	-	-	-
	Lanjigarh	-	-	-	-	-	-	-	-
	Narla	18	9.80	8.80	86.24	18	9.80	8.80	86.24
	Th Rampur	-	-	-	-	-	-	-	-
	Total	18	9.80	8.80	86.24	18	9.80	8.80	86.24

Note: As in Table 3(a). As per tracking sheets, area under *kodo* cultivation was available only for Narla, Kalahandi in *kharif* 2017-18 and only by line sowing method under Odisha Millets Mission. Hence, the values for Odisha will be same as that for Kalahandi.

Table 3(i) indicates the following. *Kharif kodo* under line sowing was cultivated by 18 farmer households in 9.8 hectares with a yield of 8.8 quintals per hectare and production of 86.24 quintals. *Kodo* was not cultivated by other methods in *kharif* or in *rabi* under Odisha Millets Mission.

Table 3: Area, Yield and Production of Millets under Odisha Millets Mission, 2017-18  
(j) All Millets (*Kharif+Rabi*) in Kalahandi, System of Millet Intensification and Line Transplantation

District/State	Block	System of Millet Intensification				Line Transplantation			
		N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q	N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q
Kalahandi	Bhawanipatna	7	2.02	8.00	16.19	-	-	-	-
	Lanjigarh	33	11.24	8.34	93.74	101	34.20	9.60	328.32
	Narla	72	38.65	8.37	323.61	-	-	-	-
	Th Rampur	7	4.05	8.00	32.38	-	-	-	-
	Total	119	55.96	8.33	465.92	101	34.20	9.60	328.32

Note: As in Table 3(a). All millets include *Mandia*, *Suan* and *Kodo*, but N<sub>p</sub> will not add up as some farmers may be cultivating multiple crops or the same crop in multiple methods.

Tables 3(j) and 3(k) indicate the following for all millets (*kharif+rabi*) in Kalahandi because this is the only district for which the tracking sheets provide more than one crop under Odisha Millets Mission, others had only *mandia*. Under system of millet intensification, 119 farmer households cultivated 56 hectares with a yield of 8.33 quintals per hectare and production of 466 quintals. Under line transplantation, 101 farmer households cultivated 34 hectares with a yield of 9.6 quintals per hectare and production of 328 quintals. Under line sowing, 306 farmer households cultivated 221 hectares with a yield of 6.65 quintals per hectare and production of 1,468 quintals. Under all methods, 472 farmer households cultivated in 311 hectares with a yield of 7.28 quintals per hectare and production of 2,263 quintals.

Table 3: Area, Yield and Production of Millets under Odisha Millets Mission, 2017-18  
(k) All Millets (*Kharif+Rabi*) in Kalahandi, Line Sowing and All Methods

District/State	Block	Line Sowing				All Methods			
		N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q	N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q
Kalahandi	Bhawanipatna	-	-	-	-	7	2.02	8.00	16.19
	Lanjigarh	156	98.00	8.80	862.40	290	143.44	8.95	1284.46
	Narla	150	122.80	4.94	606.04	168	161.45	5.76	929.65
	Th Rampur	-	-	-	-	7	4.05	8.00	32.38
	Total	306	220.80	6.65	1468.44	472	310.96	7.28	2262.68

Note: As in Table 3(a) and 3(j).

A matter of concern is that six of the seven districts (that is, all except Kalahandi) had their entire area under Odisha Millets Mission with only *mandia*. This also implies that area, yield and production for all millets by districts in Tables 3(l) and 3(m) are for *mandia* for these six districts.

Tables 3(l) and 3(m) indicate the following for all millets (*kharif+rabi*) by districts. Under system of millet intensification, 3,153 farmer households cultivated 1,766 hectares with a yield of 15.12 quintals per hectare and production of 26,706 quintals. Under line transplantation, 5,011 farmer households cultivated 3,132 hectares with a yield of 11.62 quintals per hectare and production of

36,390 quintals. Under line sowing, 504 farmer households cultivated 285 hectares with a yield of 9.92 quintals per hectare and production of 2,824 quintals. Under all methods, 8,596 farmer households cultivated in 5,182 hectares with a yield of 12.72 quintals per hectare and production of 65,929 quintals.

Table 3: Area, Yield and Production of Millets under Odisha Millets Mission, 2017-18  
(l) All Millets (*Kharif+Rabi*) by Districts, System of Millet Intensification and Line Transplantation

District/State	Block	System of Millet Intensification				Line Transplantation			
		N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q	N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q
Gajapati	Total	383	176.65	12.78	2257.82	1173	394.61	12.58	4963.86
Kalahandi	Total	119	55.96	8.33	465.92	101	34.20	9.60	328.32
Kandhamal	Total	452	75.46	23.98	1809.39	261	105.17	20.55	2161.51
Koraput	Total	1053	461.73	18.65	8610.31	1693	782.31	8.00	6258.48
Malkangiri	Total	415	452.50	12.42	5618.46	1143	1242.00	12.57	15608.26
Nuapada	Total	440	257.74	10.24	2638.13	177	55.67	8.00	445.38
Rayagada	Total	291	285.81	18.56	5305.68	463	517.81	12.79	6624.08
Odisha	All Total	3153	1765.85	15.12	26705.71	5011	3131.77	11.62	36389.89

Note: As in Table 3(a) and 3(j).

Table 3: Area, Yield and Production of Millets under Odisha Millets Mission, 2017-18  
(m) All Millets (*Kharif+Rabi*) by Districts - Line Sowing and All Methods

District/State	Block	Line Sowing				All Methods			
		N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q	N <sub>p</sub>	Area, Ha	Yield, Q/Ha	Production, Q
Gajapati	Total	198	63.94	21.20	1355.50	1748	635.20	13.50	8577.18
Kalahandi	Total	306	220.80	6.65	1468.44	472	310.96	7.28	2262.68
Kandhamal	Total	-	-	-	-	713	180.63	21.98	3970.90
Koraput	Total	-	-	-	-	2743	1244.04	11.95	14868.80
Malkangiri	Total	-	-	-	-	1558	1694.50	12.53	21226.72
Nuapada	Total	-	-	-	-	612	313.41	9.84	3083.51
Rayagada	Total	-	-	-	-	750	803.61	14.85	11929.76
Odisha	All Total	504	284.74	9.92	2823.94	8596	5182.36	12.72	65929.25

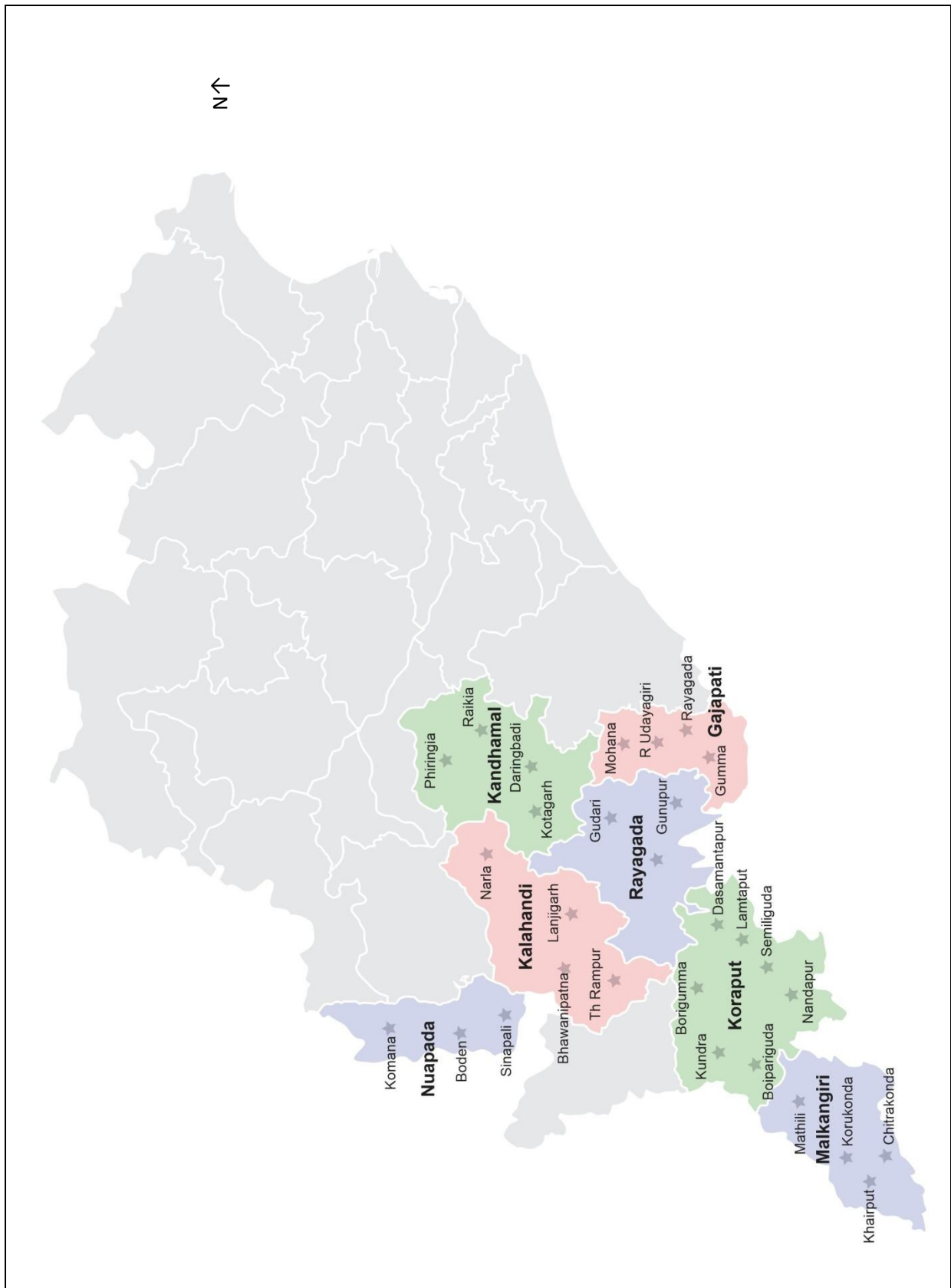
Note: As in Table 3(a) and 3(j).

From an estimated production of 65,929 quintal of millets, 97.8% is *mandia*, 2.1% is *suan*, and 0.1% is *kodo*. The estimated *mandia* production is mostly in *kharif* (95.6%). Further, distribution of *mandia* production across methods is as follows: system of millet intensification, 41.4%, line transplantation, 56.5%, and line sowing, 2.1%.

#### 4 Value of Produce

On estimates of production, given in Tables 3(a) to 3(m), baseline sale prices that are block-specific and crop-specific (Table 4) can be superimposed to provide value of produce, value of produce per hectare and value of produce per farmer household (Tables 5(a) to 5(d)). The 29 blocks where production of millets was functional in year one (2017-18) under Odisha Millets Mission are indicated in Figure 1.

Figure 1: Map of Odisha with Blocks/Districts under Odisha Millets Mission, 2017-18



Source: Odisha Millets Mission

Table 4: Block-wise Crop-wise Sale Price from Baseline Survey, 2016-17  
(rupees per quintal, ₹/Q)

District/State	Block	Mandia	Suan	Kodo
Gajapati	Gumma	1598.02	-	-
	Mohana	1763.71	1400.00	-
	R Udayagiri	1715.44	-	-
	Rayagada	1831.40	-	-
	Total	1728.26	1400.00	-
Kalahandi	Bhawanipatna	-	-	-
	Lanjigarh	1405.65	-	-
	Narla	1362.80	-	1622.11
	Th Rampur	1621.19	-	-
	Total	1420.58	-	1622.11
Kandhamal	Daringbadi	1601.76	1500.00	-
	Kotagarh	1797.78	-	-
	Phiringia	1489.41	1422.09	-
	Raikia	1654.37	-	-
	Total	1642.34	1452.14	-
Koraput	Boipariguda	1453.46	1801.79	-
	Borigumma	1450.00	-	-
	Dasamantapur	1450.00	1857.13	-
	Kundra	1555.97	2020.21	-
	Lamtaput	1852.44	1985.19	-
	Nandapur	1474.40	1572.41	-
	Semiliguda	1616.11	-	-
	Total	1596.38	1825.39	-
Malkangiri	Chitrakonda	1862.57	-	-
	Khairput	-	-	-
	Korukonda	1778.37	-	-
	Mathili	1454.11	1700.00	-
	Total	1797.93	1700.00	-
Nuapada	Boden	1655.25	-	1550.00
	Komana	1625.58	-	1381.51
	Sinapali	1619.90	-	1706.25
	Total	1641.64	-	1476.37
Rayagada	Gudari	1834.51	-	-
	Gunupur	1580.33	-	-
	Rayagada	1099.80	-	-
	Total	1223.16	-	-
Odisha		1599.28	1822.93	1480.96

Source: NCDS (2019h)

Table 5(a) indicates the following for *mandia* intervention under Odisha Millets Mission in 2017-18. Average area per household is 0.59 hectares, average production per farmer household is 7.72 quintals, average yield is 12.99 quintals per hectare, value of produce is ₹10.47 crore, value of produce per hectare is ₹21,097, and value of produce per farmer household is ₹12,538.

Table 5: Value of Produce, Value of Produce per Hectare and Value of Produce per Household for 2017-18 in 2016-17 Prices

(a) *Mandia*

District	Block	Area per N <sub>p</sub> , Ha/N <sub>p</sub>	Production per N <sub>p</sub> , Q/N <sub>p</sub>	Yield, Q/Ha	Value of Produce, ₹	Value per Ha, ₹/Ha	Value per N <sub>p</sub> , ₹/N <sub>p</sub>
Gajapati	Gumma	0.30	2.65	8.88	2471036	14193	4231
	Mohana	0.35	9.92	28.05	6716848	49479	17492
	R Udayagiri	0.38	4.01	10.62	3731344	18225	6884
	Rayagada	0.51	4.40	8.68	1918113	15905	8059
	Total	0.36	4.91	13.50	14837340	23359	8488
Kalahandi	Bhawanipatna	0.29	2.31	8.00	22996	11365	3285
	Lanjigarh	0.34	3.15	9.29	593271	13057	4427
	Narla	0.53	4.46	8.42	437884	11477	6082
	Th Rampur	0.58	4.63	8.00	52487	12969	7498
	Total	0.41	3.60	8.83	1106638	12342	5030
Kandhamal	Daringbadi	0.06	2.14	33.30	1207537	53338	3431
	Kotagarh	0.57	13.82	24.40	2634421	43873	24853
	Phiringia	0.25	5.77	23.20	498106	34557	8588
	Raikia	0.42	7.19	16.97	2344584	28070	11901
	Total	0.25	5.57	21.98	6684649	37008	9375
Koraput	Boipariguda	0.58	4.98	8.65	3057216	12570	7245
	Borigumma	0.42	3.59	8.56	1551912	12410	5208
	Dasamantapur	0.43	4.84	11.38	2476466	16496	7015
	Kundra	0.55	5.80	10.48	2346142	16307	9024
	Lamtaput	0.24	2.82	11.79	3798554	21838	5232
	Nandapur	0.40	7.99	19.73	5887689	29097	11775
	Semiliguda	1.12	13.24	11.85	3936070	19154	21392
	Total	0.45	5.42	11.95	23054049	18532	8405
Malkangiri	Chitrakonda	1.06	18.70	17.69	13027722	32940	34833
	Khairput	1.01	10.24	10.09	5577969	18140	18409
	Korukonda	1.12	12.88	11.47	8586677	20396	22898
	Mathili	1.13	12.45	11.05	9162955	16061	18109
	Total	1.09	13.62	12.53	36355322	21455	23335
Nuapada	Boden	0.62	5.40	8.75	3045976	14482	8932
	Komana	0.58	9.09	15.71	1344579	25543	14776
	Sinapali	0.27	2.26	8.25	674183	13364	3664
	Total	0.51	5.01	9.84	5064738	16160	8222
Rayagada	Gudari	1.02	16.22	15.91	4641669	29180	29754
	Gunupur	1.28	17.39	13.64	8492050	21553	27482
	Rayagada	0.88	14.13	16.07	4427767	17673	15536
	Total	1.07	15.91	14.85	17561485	21853	23415
Odisha	All Total	0.59	7.72	12.99	104664221	21097	12538

Note: As in Table 3(a). Crop-specific, block-specific data for N<sub>p</sub> (farmer households), area and production from Table 3 and price from Table 4. If for a crop and block, price data is not available then district-specific price data for that crop is used and if district-specific price data is also not available then state-specific price data for that crop is used. Figures have been rounded off.

Table 5(b) indicates the following for *suau* intervention under Odisha Millets Mission in 2017-18. Average area per household is 0.69 Ha, average production per household is 4.51 Q, average yield is

6.55 Q/Ha, value of produce is ₹25.24 lakh, value of produce per hectare is ₹11,933, and value of produce per household is ₹8,221.

Table 5: Value of Produce, Value of Produce per Hectare and Value of Produce per Household for 2017-18 in 2016-17 Prices

(b) *Suan*

District	Block	Area per N <sub>p</sub> , Ha/N <sub>p</sub>	Production per N <sub>p</sub> , Q/N <sub>p</sub>	Yield, Q/Ha	Value of Produce, ₹	Value per Ha, ₹/Ha	Value per N <sub>p</sub> , ₹/ N <sub>p</sub>
Gajapati	Total	-	-	-	-	-	-
Kalahandi	Bhawanipatna	-	-	-	-	-	-
	Lanjigarh	0.63	5.53	8.80	1572096	16042	10078
	Narla	0.75	3.46	4.60	951753	8385	6303
	Th Rampur	-	-	-	-	-	-
	Total	0.69	4.51	6.55	2523849	11933	8221
Kandhamal	Total	-	-	-	-	-	-
Koraput	Total	-	-	-	-	-	-
Malkangiri	Total	-	-	-	-	-	-
Nuapada	Total	-	-	-	-	-	-
Rayagada	Total	-	-	-	-	-	-
Odisha	All Total	0.69	4.51	6.55	2523849	11933	8221

Note: As in Tables 3(a) and 5(a). *Suan* was cultivated only in Lanjigarh and Narla of Kalahandi in 2017-18 under Odisha Millets Mission.

Table 5: Value of Produce, Value of Produce per Hectare and Value of Produce per Household for 2017-18 in 2016-17 Prices

(c) *Kodo*

District	Block	Area per N <sub>p</sub> , Ha/N <sub>p</sub>	Production per N <sub>p</sub> , Q/N <sub>p</sub>	Yield, Q/Ha	Value of Produce, ₹	Value per Ha, ₹/Ha	Value per N <sub>p</sub> , ₹/ N <sub>p</sub>
Gajapati	Total	-	-	-	-	-	-
Kalahandi	Bhawanipatna	-	-	-	-	-	-
	Lanjigarh	-	-	-	-	-	-
	Narla	0.54	4.79	8.80	139890	14275	7772
	Th Rampur	-	-	-	-	-	-
	Total	0.54	4.79	8.80	139890	14275	7772
Kandhamal	Total	-	-	-	-	-	-
Koraput	Total	-	-	-	-	-	-
Malkangiri	Total	-	-	-	-	-	-
Nuapada	Total	-	-	-	-	-	-
Rayagada	Total	-	-	-	-	-	-
Odisha	All Total	0.54	4.79	8.80	139890	14275	7772

Note: As in Tables 3(a) and 5(a). *Kodo* was cultivated only in Narla, Kalahandi in 2017-18 under Odisha Millets Mission.

Table 5(c) indicates the following for *kodo* intervention under Odisha Millets Mission in 2017-18. Average area per household is 0.54 Ha, average production per household is 4.79 Q, average yield is 8.8 Q/Ha, value of produce is ₹1.4 lakh, value of produce per hectare is ₹14,275, and value of produce per household is ₹7,772.



Table 5: Value of Produce, Value of Produce per Hectare and Value of Produce per Household  
for 2017-18 in 2016-17 Prices

(d) All Millets

District	Block	Area per N <sub>p</sub> , Ha/N <sub>p</sub>	Production per N <sub>p</sub> , Q/N <sub>p</sub>	Yield, Q/Ha	Value of Produce, ₹	Value per Ha, ₹/Ha	Value per N <sub>p</sub> , ₹/N <sub>p</sub>
Gajapati	Gumma	0.30	2.65	8.88	2471036	14193	4231
	Mohana	0.35	9.92	28.05	6716848	49479	17492
	R Udayagiri	0.38	4.01	10.62	3731344	18225	6884
	Rayagada	0.51	4.40	8.68	1918113	15905	8059
	Total	0.36	4.91	13.50	14837340	23359	8488
Kalahandi	Bhawanipatna	0.29	2.31	8.00	22996	11365	3285
	Lanjigarh	0.49	4.43	8.95	2165367	15096	7467
	Narla	0.96	5.53	5.76	1529527	9473	9104
	Th Rampur	0.58	4.63	8.00	52487	12969	7498
	Total	0.66	4.79	7.28	3770377	12125	7988
Kandhamal	Daringbadi	0.06	2.14	33.30	1207537	53338	3431
	Kotagarh	0.57	13.82	24.40	2634421	43873	24853
	Phiringia	0.25	5.77	23.20	498106	34557	8588
	Raikia	0.42	7.19	16.97	2344584	28070	11901
	Total	0.25	5.57	21.98	6684649	37008	9375
Koraput	Boipariguda	0.58	4.98	8.65	3057216	12570	7245
	Borigumma	0.42	3.59	8.56	1551912	12410	5208
	Dasamantapur	0.43	4.84	11.38	2476466	16496	7015
	Kundra	0.55	5.80	10.48	2346142	16307	9024
	Lamtaput	0.24	2.82	11.79	3798554	21838	5232
	Nandapur	0.40	7.99	19.73	5887689	29097	11775
	Semiliguda	1.12	13.24	11.85	3936070	19154	21392
	Total	0.45	5.42	11.95	23054049	18532	8405
Malkangiri	Chitrakonda	1.06	18.70	17.69	13027722	32940	34833
	Khairput	1.01	10.24	10.09	5577969	18140	18409
	Korukonda	1.12	12.88	11.47	8586677	20396	22898
	Mathili	1.13	12.45	11.05	9162955	16061	18109
	Total	1.09	13.62	12.53	36355322	21455	23335
Nuapada	Boden	0.62	5.40	8.75	3045976	14482	8932
	Komana	0.58	9.09	15.71	1344579	25543	14776
	Sinapali	0.28	2.31	8.25	674183	13364	3745
	Total	0.51	5.04	9.84	5064738	16160	8276
Rayagada	Gudari	1.02	16.22	15.91	4641669	29180	29754
	Gunupur	1.28	17.39	13.64	8492050	21553	27482
	Rayagada	0.88	14.13	16.07	4427767	17673	15536
	Total	1.07	15.91	14.85	17561485	21853	23415
Odisha	All Total	0.60	7.67	12.72	107327960	20710	12486

Note: As in Tables 3(a), 5(a), 5(b) and 5(c). Except for Lanjigarh and Narla in Kalahandi, all other blocks and districts will have the same values as that for *Mandia*.

Table 5(d) indicates the following for millets intervention under Odisha Millets Mission in 2017-18. Average area per farmer household is 0.60 hectares, average production per household is 7.67 quintals, average yield is 12.72 quintals per hectare, value of produce is ₹10.73 crore, value of produce per hectare is ₹20,710, and value of produce per farmer household is ₹12,486. Except for

Lanjigarh and Narla blocks in Kalahandi, all other blocks and districts will have the same values as that for *mandia*. And, from the total value of produce, 97.5% is from *mandia*.

## 5 Comparing Year One of Intervention with Baseline

Table 6: Comparing Year One of Odisha Millets Mission with Baseline for Average Area, Yield, Value of Produce per Hectare and Value of Produce per Household

District/State	Block	2016-17 (Baseline)					2017-18 (Year 1)				
		N <sub>p</sub>	Ha/N <sub>p</sub>	Q/Ha	₹/Ha	₹/N <sub>p</sub>	N <sub>p</sub>	Ha/N <sub>p</sub>	Q/Ha	₹/Ha	₹/N <sub>p</sub>
Gajapati	Gumma	329	0.45	1.47	2354	1063	584	0.30	8.88	14193	4231
	Mohana	243	0.22	5.40	9524	2069	384	0.35	28.05	49479	17492
	R Udayagiri	138	0.60	4.31	7902	4739	542	0.38	10.62	18225	6884
	Rayagada	517	0.27	8.99	15430	4149	238	0.51	8.68	15905	8059
	Total	1227	0.34	4.99	8629	2976	1748	0.36	13.50	23359	8488
Kalahandi	Bhawanipatna	-	-	-	-	-	7	0.29	8.00	11365	3285
	Lanjigarh	247	0.28	4.65	6531	1846	134	0.34	9.29	13057	4427
	Narla	138	0.47	2.69	3667	1729	72	0.53	8.42	11477	6082
	Th Rampur	97	0.35	4.61	7477	2592	7	0.58	8.00	12969	7498
	Total	482	0.35	3.88	5614	1963	220	0.41	8.83	12342	5030
Kandhamal	Daringbadi	346	0.21	1.79	2862	592	352	0.06	33.30	53338	3431
	Kotagarh	58	0.50	2.25	4051	2007	106	0.57	24.40	43873	24853
	Phiringia	52	0.48	2.06	3075	1484	58	0.25	23.20	34557	8588
	Raikia	136	0.28	3.09	5109	1412	197	0.42	16.97	28070	11901
	Total	592	0.28	2.21	3622	998	713	0.25	21.98	37008	9375
Koraput	Boipariguda	348	0.52	6.55	9524	4970	422	0.58	8.65	12570	7245
	Borigumma	135	0.52	6.12	8868	4645	298	0.42	8.56	12410	5208
	Dasamantapur	322	0.42	7.04	10213	4259	353	0.43	11.38	16496	7015
	Kundra	446	0.36	6.14	9546	3453	260	0.55	10.48	16307	9024
	Lamtaput	711	0.43	9.33	17286	7466	726	0.24	11.79	21838	5232
	Nandapur	491	0.47	10.31	15201	7078	500	0.40	19.73	29097	11775
	Semiliguda	144	0.44	10.98	17743	7868	184	1.12	11.85	19154	21392
	Total	2597	0.44	8.26	13233	5847	2743	0.45	11.95	18532	8405
Malkangiri	Chittrakonda	311	0.42	7.17	13350	5642	374	1.06	17.69	32940	34833
	Khairput	-	-	-	-	-	303	1.01	10.09	18140	18409
	Korukonda	318	0.40	3.24	5769	2325	375	1.12	11.47	20396	22898
	Mathili	298	0.34	3.41	4961	1672	506	1.13	11.05	16061	18109
	Total	927	0.39	4.72	8312	3228	1558	1.09	12.53	21455	23335
Nuapada	Boden	301	0.49	2.89	4786	2350	341	0.62	8.75	14482	8932
	Komana	173	0.50	2.38	3865	1914	91	0.58	15.71	25543	14776
	Sinapali	215	0.27	3.79	6136	1661	184	0.27	8.25	13364	3664
	Total	689	0.42	2.92	4785	2026	616	0.51	9.84	16160	8222
Rayagada	Gudari	22	0.28	3.29	6029	1697	156	1.02	15.91	29180	29754
	Gunupur	222	0.21	3.24	5123	1084	309	1.28	13.64	21553	27482
	Rayagada	208	0.42	4.20	4624	1942	285	0.88	16.07	17673	15536
	Total	452	0.31	3.84	4853	1508	750	1.07	14.85	21853	23415
Odisha	All Total	6966	0.39	5.83	9443	3652	8348	0.59	12.99	21097	12538

Note and Source: As in Tables 3(a), 4 and 5(a). N<sub>p</sub> in 2016-17 refers to farmer households surveyed under baseline, Ha/N<sub>p</sub> is average area in hectare per farmer household (for year one it refers to area through Odisha Millets Mission intervention only), Q/Ha is yield, ₹/Ha is gross value of produce per hectare, and ₹/N<sub>p</sub> is gross value of produce per farmer household. Baseline data from NCDS (2019h).

Table 6: Comparing Year One of Odisha Millets Mission with Baseline for Average Area, Yield, Value of Produce per Hectare and Value of Produce per Household

		(b) All Millets									
District/State	Block	2016-17 (Baseline)					2017-18 (Year 1)				
		N <sub>p</sub>	Ha/N <sub>p</sub>	Q/Ha	₹/Ha	₹/No <sub>p</sub>	N <sub>p</sub>	Ha/N <sub>p</sub>	Q/Ha	₹/Ha	₹/No <sub>p</sub>
Gajapati	Gumma	330	0.47	1.46	2321	1084	584	0.30	8.88	14193	4231
	Mohana	304	0.27	5.16	8678	2386	384	0.35	28.05	49479	17492
	R Udayagiri	138	0.60	4.31	7902	4739	542	0.38	10.62	18225	6884
	Rayagada	517	0.27	8.99	15424	4152	238	0.51	8.68	15905	8059
	Total	1289	0.36	4.93	8449	3013	1748	0.36	13.50	23359	8488
Kalahandi	Bhawanipatna	-	-	-	-	-	7	0.29	8.00	11365	3285
	Lanjigarh	247	0.28	4.65	6531	1846	290	0.49	8.95	15096	7467
	Narla	138	0.57	2.70	3887	2216	168	0.96	5.76	9473	9104
	Th Rampur	97	0.35	4.61	7477	2592	7	0.58	8.00	12969	7498
	Total	482	0.38	3.80	5563	2102	472	0.66	7.28	12125	7988
Kandhamal	Daringbadi	346	0.25	1.87	3005	756	352	0.06	33.30	53338	3431
	Kotagarh	58	0.50	2.25	4051	2007	106	0.57	24.40	43873	24853
	Phiringia	52	0.61	2.11	3203	1951	58	0.25	23.20	34557	8588
	Raikia	136	0.28	3.03	5012	1424	197	0.42	16.97	28070	11901
	Total	592	0.31	2.21	3617	1137	713	0.25	21.98	37008	9375
Koraput	Boipariguda	349	0.56	6.53	9646	5392	422	0.58	8.65	12570	7245
	Borigumma	136	0.53	6.12	8922	4745	298	0.42	8.56	12410	5208
	Dasamantapur	328	0.77	6.94	11357	8736	353	0.43	11.38	16496	7015
	Kundra	446	0.37	6.13	9591	3551	260	0.55	10.48	16307	9024
	Lamtapur	711	0.44	9.30	17246	7570	726	0.24	11.79	21838	5232
	Nandapur	491	0.51	9.89	14628	7481	500	0.40	19.73	29097	11775
	Semiliguda	144	0.44	10.98	17743	7868	184	1.12	11.85	19154	21392
	Total	2605	0.50	8.05	13084	6589	2743	0.45	11.95	18532	8405
Malkangiri	Chitrakonda	311	0.42	7.17	13350	5642	374	1.06	17.69	32940	34833
	Khairput	-	-	-	-	-	303	1.01	10.09	18140	18409
	Korukonda	318	0.40	3.24	5769	2325	375	1.12	11.47	20396	22898
	Mathili	298	0.34	3.41	4958	1677	506	1.13	11.05	16061	18109
	Total	927	0.39	4.72	8307	3230	1558	1.09	12.53	21455	23335
Nuapada	Boden	301	0.49	2.91	4806	2372	341	0.62	8.75	14482	8932
	Komana	177	0.55	2.34	3741	2073	91	0.58	15.71	25543	14776
	Sinapali	215	0.28	3.72	6039	1709	180	0.28	8.25	13364	3745
	Total	693	0.44	2.89	4710	2090	612	0.51	9.84	16160	8276
Rayagada	Gudari	23	0.29	3.40	6156	1765	156	1.02	15.91	29180	29754
	Gunupur	222	0.22	3.21	5077	1092	309	1.28	13.64	21553	27482
	Rayagada	208	0.42	4.20	4624	1942	285	0.88	16.07	17673	15536
	Total	453	0.31	3.83	4848	1517	750	1.07	14.85	21853	23415
Odisha	All Total	7041	0.42	5.79	9447	3957	8596	0.60	12.72	20710	12486

Note: As in Tables 3(a), 5(a) and 6(a).

Comparing year one (2017-18) of Odisha Millets Mission with baseline (2016-17), NCDS (2019h), Tables 6(a) and 6(b) and their percentage changes, Table 7 and Figure 2, indicate the following. For *mandia*, average area per farmer household increased by 53.6%, yield increased by 122.9%, value of produce per hectare increased by 123.4%, and value of produce per farmer household increased by

243.3%. For all millets, average area per farmer household increased by 43.9%, yield increased by 119.8%, value of produce per hectare increased by 119.2%, and value of produce per farmer household increased by 215.5%.

Table 7: Percentage Change in Year One of Odisha Millets Mission (2017-18) over Baseline (2016-17) for Average Area, Yield, Value of Produce per Hectare and Value of Produce per Household

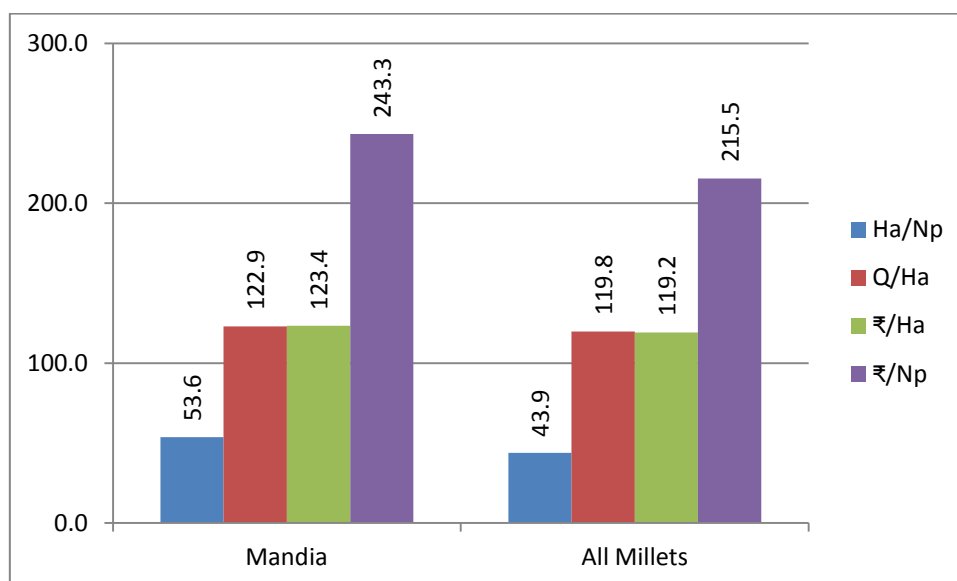
District/State	Block	<i>Mandia</i>				All Millets			
		Ha/N <sub>p</sub>	Q/Ha	₹/Ha	₹/No	Ha/N <sub>p</sub>	Q/Ha	₹/Ha	₹/No
Gajapati	Gumma	-34.0	502.8	502.8	297.9	-36.2	509.4	511.5	290.2
	Mohana	62.7	419.5	419.5	745.4	28.6	443.9	470.2	633.2
	R Udayagiri	40.5	18.1	18.1	65.9	40.3	18.2	18.2	65.8
	Rayagada	-15.5	101.3	101.3	70.1	-15.5	101.3	101.3	70.1
	Total	5.4	170.6	170.7	185.2	1.9	174.1	176.5	181.7
Kalahandi	Bhawanipatna	-	-	-	-	-	-	-	-
	Lanjigarh	20.0	99.9	99.9	139.9	75.0	92.7	131.2	304.6
	Narla	12.4	213.0	213.0	251.7	68.6	113.5	143.7	310.9
	Th Rampur	66.8	73.5	73.5	189.3	66.8	73.5	73.5	189.3
	Total	16.6	127.4	119.9	156.3	74.4	91.6	117.9	280.0
Kandhamal	Daringbadi	-68.9	1763.9	1763.9	479.0	-74.5	1678.2	1675.1	353.5
	Kotagarh	14.4	982.9	982.9	1138.3	14.4	982.9	982.9	1138.3
	Phiringia	-48.5	1023.8	1023.8	478.8	-59.2	999.8	979.0	340.2
	Raikia	53.4	449.4	449.4	742.6	49.2	459.6	460.0	735.6
	Total	-8.0	893.9	921.6	839.7	-19.4	893.7	923.2	724.3
Koraput	Boipariguda	10.5	32.0	32.0	45.8	3.1	32.4	30.3	34.4
	Borigumma	-19.9	39.9	39.9	12.1	-21.1	39.9	39.1	9.8
	Dasamantapur	2.0	61.5	61.5	64.7	-44.7	64.0	45.2	-19.7
	Kundra	53.0	70.8	70.8	161.3	49.5	71.1	70.0	154.1
	Lamtaput	-44.5	26.3	26.3	-29.9	-45.4	26.7	26.6	-30.9
	Nandapur	-13.1	91.4	91.4	66.4	-20.9	99.6	98.9	57.4
	Semiliguda	151.8	8.0	8.0	171.9	151.8	8.0	8.0	171.9
	Total	2.6	44.6	40.0	43.7	-9.9	48.4	41.6	27.6
Malkangiri	Chitrakonda	150.2	146.7	146.7	517.3	150.2	146.7	146.7	517.3
	Khairput	-	-	-	-	-	-	-	-
	Korukonda	178.6	253.5	253.5	885.1	178.6	253.5	253.5	885.1
	Mathili	234.6	223.8	223.8	983.2	233.2	224.1	224.0	979.5
	Total	180.1	165.2	158.1	622.9	179.8	165.3	158.3	622.5
Nuapada	Boden	25.6	202.6	202.6	280.1	25.0	201.1	201.3	276.6
	Komana	16.8	561.0	561.0	672.0	4.4	571.3	582.9	612.7
	Sinapali	1.3	117.8	117.8	120.6	-1.0	121.6	121.3	119.2
	Total	20.2	237.0	237.7	305.9	15.4	240.8	243.1	296.0
Rayagada	Gudari	262.3	384.0	384.0	1653.4	255.5	367.4	374.0	1585.4
	Gunupur	502.7	320.7	320.7	2435.7	492.5	324.6	324.6	2415.7
	Rayagada	109.4	282.2	282.2	700.2	109.4	282.2	282.2	700.2
	Total	244.7	286.4	350.3	1452.4	242.5	287.3	350.8	1444.0
Odisha	All Total	53.6	122.9	123.4	243.3	43.9	119.8	119.2	215.5

Note: As in Tables 1 to 6.

Table 7 also indicates the following. From the 27 blocks for which we have comparable data, average area cultivated has decreased in seven blocks (Gumma and Rayagada in Gajapati, Daringbadi and Phiringia in Kandhamal, and Borigumma, Lamtaput and Nandapur in Koraput) for *mandia* and in

eight blocks for all millets (in addition to the seven blocks for *mandia*, it also includes Dasamantapur in Koraput). This could be because millet cultivation in the conventional broadcasting method by the households is not meant to be tracked for receiving incentives under Odisha Millets Mission, and hence, has not been documented. In each and every block/district the yield has increased and, as a corollary, the value of produce (in real terms) per hectare has also increased. The value of produce (in real terms) per household has increased in all except for Dasamantapur in all millets, and Lamtaput in *mandia* and all millets.

Figure 2: Percentage Change in Year One over Baseline for Area per Household, Yield, Value of Produce per Hectare and Value of Produce per Farmer Household



Note and Source: As in Tables 1 to 7. Ha/N<sub>p</sub> is average millets cultivating area in hectare per farmer household (for year one it refers to area through Odisha Millets Mission intervention only), Q/Ha is yield in quintal per hectare, ₹/Ha is value of produce per hectare, and ₹/N<sub>p</sub> is value of produce per farmer household.

## 6 Alternative Specifications: Robustness Check

In estimating yield, the approach in this report has been to take the minimum yield at the block level controlled for season, crop and method of cultivation. This has two opposing limitations. At one level, in those cases where there is only one crop cutting experiment then the possible selection bias, if any, cannot be minimized. At the other level, in those cases with multiple crop cutting experiments, it excludes all observation in favour of the minimum. To address this two opposing views, two alternative specifications for computing yield at the block level are put forth.

The first alternative specification is restricted minimum yield. For a given block-season-crop-method, we used block-season-crop-method-specific minimum yield from the crop cutting experiments if there were at least three experiments; if three experiments were not available, we used the minimum yield at the district-season-crop-method level if there were at least three experiments; if three experiments were still not available, we used the minimum yield at the state-season-crop-method level if there were at least three experiments; if three experiments were still not available,

we used the minimum yield at the state-season-crop level across all methods if there were at least three experiments; if three experiments were still not available, we used the minimum yield at the state-season-method level across crops if there were at least three experiments.

Table 8: Alternative Specifications in Year One (2017-18) and its change over Baseline (2016-17) for Yield, Value of Produce per Hectare and Value of Produce per Household

(a) Restricted Minimum

District/Block	<i>Mandia</i>						All Millets						
	Estimates			Change over Baseline			Estimates			Change over Baseline			
	Q/Ha	₹/Ha	₹/N <sub>p</sub>	Q/Ha	₹/Ha	₹/N <sub>p</sub>	Q/Ha	₹/Ha	₹/N <sub>p</sub>	Q/Ha	₹/Ha	₹/N <sub>p</sub>	
Gajapati	Gumma	8.9	14193	4231	502.8	502.8	297.9	8.9	14193	4231	509.4	511.5	290.2
	Mohana	8.4	14810	5236	55.5	55.5	153.0	8.4	14810	5236	62.8	70.7	119.5
	Rayagada	9.4	16123	6091	4.5	4.5	46.8	9.4	16123	6091	4.5	4.5	46.7
	R Udayagiri	8.7	15905	8059	101.3	101.3	70.1	8.7	15905	8059	101.3	101.3	70.1
	Total	8.9	15272	5550	78.5	77.0	86.5	8.9	15272	5550	80.8	80.8	84.2
Kalahandi	Bhawanipatna	8.0	11365	3285	-	-	-	8.0	11365	3285	-	-	-
	Lanjigarh	9.3	13057	4427	99.9	99.9	139.9	9.0	15096	7467	92.7	131.2	304.6
	Narla	8.4	11477	6082	213.0	213.0	251.7	5.5	9060	8707	104.0	133.1	292.9
	Th Rampur	8.0	12969	7498	73.5	73.5	189.3	8.0	12969	7498	73.5	73.5	189.3
	Total	8.8	12342	5030	127.4	119.9	156.3	7.1	11910	7847	88.1	114.1	273.3
Kandhamal	Daringbadi	20.8	33328	2144	1064.6	1064.6	261.8	20.8	33328	2144	1011.1	1009.2	183.4
	Kotagarh	20.4	36696	20787	805.8	805.8	935.7	20.4	36696	20787	805.8	805.8	935.7
	Phiringia	15.8	23465	5832	663.1	663.1	293.0	15.8	23465	5832	646.8	632.7	198.9
	Raikia	14.6	24194	10258	373.5	373.5	626.3	14.6	24194	10258	382.4	382.7	620.2
	Total	17.4	29437	7457	687.3	712.6	647.5	17.4	29437	7457	687.1	713.9	555.7
Koraput	Boipariguda	8.1	11779	6788	23.7	23.7	36.6	8.1	11779	6788	24.1	22.1	25.9
	Borigumma	8.6	12410	5208	39.9	39.9	12.1	8.6	12410	5208	39.9	39.1	9.8
	Dasamantapur	11.4	16496	7015	61.5	61.5	64.7	11.4	16496	7015	64.0	45.2	-19.7
	Kundra	8.3	12892	7134	35.1	35.1	106.6	8.3	12892	7134	35.3	34.4	100.9
	Lamtaput	11.8	21838	5232	26.3	26.3	-29.9	11.8	21838	5232	26.7	26.6	-30.9
	Nandapur	19.7	29097	11775	91.4	91.4	66.4	19.7	29097	11775	99.6	98.9	57.4
	Semiliguda	11.9	19154	21392	8.0	8.0	171.9	11.9	19154	21392	8.0	8.0	171.9
	Total	11.6	17982	8155	40.3	35.9	39.5	11.6	17982	8155	43.9	37.4	23.8
Malkangiri	Chitrakonda	17.3	32287	34143	141.8	141.8	505.1	17.3	32287	34143	141.8	141.8	505.1
	Khairput	10.1	18140	18409	-	-	-	10.1	18140	18409	-	-	-
	Korukonda	11.5	20396	22898	253.5	253.5	885.1	11.5	20396	22898	253.5	253.5	885.1
	Mathili	10.6	15426	17393	211.0	211.0	940.4	10.6	15426	17393	211.3	211.2	936.8
	Total	12.3	21089	22936	160.4	153.7	610.6	12.3	21089	22936	160.5	153.9	610.2
Nuapada	Boden	8.7	14482	8932	202.6	202.6	280.1	8.7	14482	8932	201.1	201.3	276.6
	Komana	15.7	25543	14776	561.0	561.0	672.0	15.7	25543	14776	571.3	582.9	612.7
	Sinapali	8.2	13364	3664	117.8	117.8	120.6	8.2	13364	3745	121.6	121.3	119.2
	Total	9.8	16160	8222	237.0	237.7	305.9	9.8	16160	8276	240.8	243.1	296.0
Rayagada	Gudari	15.2	27796	28343	361.0	361.0	1570.3	15.2	27796	28343	345.2	351.6	1505.5
	Gunupur	9.7	15316	19529	198.9	198.9	1701.8	9.7	15316	19529	201.7	201.7	1687.6
	Rayagada	12.9	14133	12424	205.6	205.6	539.9	12.9	14133	12424	205.6	205.6	539.9
	Total	11.8	17417	18662	206.0	258.9	1137.2	11.8	17417	18662	206.8	259.3	1130.6
All Total	16.7	11.6	18805	11175	98.5	99.1	206.0	11.3	18503	11155	96.2	95.9	

Note: As in Tables 1 to 6. Restricted minimum uses minimum yield from at least three crop cutting experiments (CCEs). As against this, our proposed specification in Tables 3-7 uses minimum yield even if there is a single CCE, as in Table 2, and in that sense is not restricted.

Table 8: Alternative Specifications in Year One (2017-18) and its Change over Baseline (2016-17) for Yield, Value of Produce per Hectare and Value of Produce per Household

(b) Average

District/Block	<i>Mandia</i>						All Millets						
	Estimates			Change over Baseline			Estimates			Change over Baseline			
	Q/Ha	₹/Ha	₹/N <sub>p</sub>	Q/Ha	₹/Ha	₹/N <sub>p</sub>	Q/Ha	₹/Ha	₹/N <sub>p</sub>	Q/Ha	₹/Ha	₹/N <sub>p</sub>	
Gajapati	Gumma	11.4	18242	5438	674.8	674.8	411.4	11.4	18242	5438	683.3	685.9	401.5
	Mohana	28.6	50500	17853	430.2	430.2	762.8	28.6	50500	17853	455.2	481.9	648.4
	R Udayagiri	11.8	20322	7677	31.7	31.7	85.0	11.8	20322	7677	31.8	31.8	84.9
	Rayagada	12.0	22042	11169	178.9	178.9	135.7	12.0	22042	11169	178.9	178.9	135.7
	Total	15.4	26528	9640	207.7	207.4	223.9	15.4	26528	9640	211.7	214.0	219.9
Kalahandi	Bhawanipatna	15.3	21719	6278	-	-	-	15.3	21719	6278	-	-	-
	Lanjigarh	12.3	17252	5850	164.2	164.2	217.0	11.3	18956	9376	143.0	190.3	408.0
	Narla	20.3	27600	14626	652.7	652.7	745.8	11.2	18049	17346	314.1	364.4	682.8
	Th Rampur	15.3	24786	14330	231.5	231.5	452.8	15.3	24786	14330	231.5	231.5	452.8
	Total	15.9	22096	9005	308.7	293.6	358.9	11.3	18579	12240	197.6	234.0	482.3
Kandhamal	Daringbadi	41.5	66430	4273	2221.4	2221.4	621.2	41.5	66430	4273	2114.7	2110.8	464.8
	Kotagarh	39.5	70981	40209	1652.0	1652.0	1903.5	39.5	70981	40209	1652.0	1652.0	1903.5
	Phiringia	23.8	35471	8815	1053.6	1053.6	494.2	23.8	35471	8815	1028.9	1007.6	351.9
	Raikia	18.8	31124	13196	509.2	509.2	834.3	18.8	31124	13196	520.5	521.0	826.5
	Total	28.9	49146	12450	1207.7	1256.7	1147.9	28.9	49146	12450	1207.4	1258.8	994.7
Koraput	Boipariguda	13.3	19285	11114	102.5	102.5	123.6	13.3	19285	11114	103.1	99.9	106.1
	Borigumma	13.2	19095	8013	115.3	115.3	72.5	13.2	19095	8013	115.3	114.0	68.9
	Dasamantapur	16.2	23517	10001	130.3	130.3	134.8	16.2	23517	10001	133.8	107.1	14.5
	Kundra	19.4	30175	16698	216.1	216.1	383.5	19.4	30175	16698	216.6	214.6	370.3
	Lamtaput	18.8	34906	8363	101.9	101.9	12.0	18.8	34906	8363	102.6	102.4	10.5
	Nandapur	23.8	35148	14224	131.2	131.2	101.0	23.8	35148	14224	141.1	140.3	90.1
	Semiliguda	16.5	26723	29845	50.6	50.6	279.3	16.5	26723	29845	50.6	50.6	279.3
	Total	17.4	27029	12259	110.1	104.3	109.7	17.4	27029	12259	115.6	106.6	86.0
Malkangiri	Chitrakonda	23.0	42764	45222	220.3	220.3	701.5	23.0	42764	45222	220.3	220.3	701.5
	Khairput	18.3	32940	33429	-	-	-	18.3	32940	33429	-	-	-
	Korukonda	13.5	24037	26986	316.6	316.6	1060.9	13.5	24037	26986	316.6	316.6	1060.9
	Mathili	11.9	17241	19439	247.5	247.5	1062.8	11.9	17241	19439	247.9	247.8	1058.8
	Total	16.0	27736	30166	239.4	233.7	834.6	16.0	27736	30166	239.6	233.9	834.0
Nuapada	Boden	11.9	19705	12154	311.7	311.7	417.1	11.9	19705	12154	309.7	310.0	412.4
	Komana	18.6	30260	17504	683.0	683.0	814.6	18.6	30260	17504	695.3	709.0	744.3
	Sinapali	12.9	20880	5725	240.3	240.3	244.6	12.9	20880	5852	246.3	245.8	242.5
	Total	13.2	21667	11024	351.8	352.8	444.2	13.2	21667	11096	356.9	360.0	430.9
Rayagada	Gudari	21.6	39538	40315	555.7	555.7	2275.8	21.6	39538	40315	533.3	542.3	2183.6
	Gunupur	14.1	22326	28467	335.8	335.8	2526.6	14.1	22326	28467	339.8	339.8	2505.8
	Rayagada	18.3	20074	17647	334.1	334.1	808.9	18.3	20074	17647	334.1	334.1	808.9
	Total	16.9	25030	26820	339.4	415.8	1678.1	16.9	25030	26820	340.5	416.3	1668.5
All Total	16.7	27260	16200	186.7	188.7	343.5	16.4	26828	16174	183.3	184.0	308.7	

Note: As in Tables 1 to 6 and 8(a). An average is a measure of central tendency. Nevertheless, as a cautionary step to guard against possible selection bias, it is being considered as an alternative specification that may provide higher estimates.

The second alternative specification is average yield. For a given block-season-crop-method, we used the block-season-crop-method-specific average yield from the crop cutting experiments; if there were no experiments, we used district-season-crop-method-specific average yield from the crop cutting experiments; if there were still no experiments, we used state-season-crop-method-specific average yield from the crop cutting experiments.

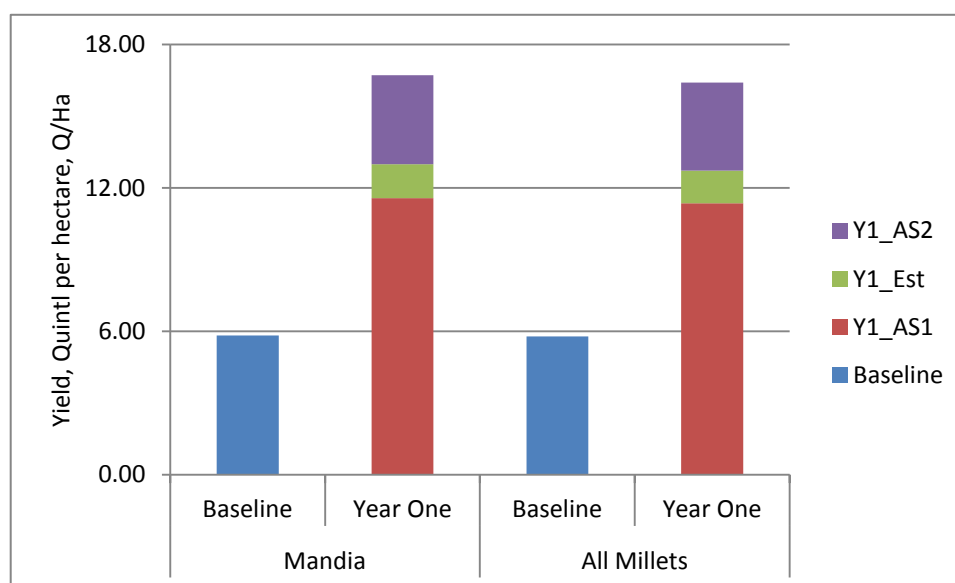
The comparison of year one of Odisha Millets Mission with baseline through alternative specifications (Tables 8 and 9 and Figures 3-5) suggests that our proposed approach is in between the two alternatives (the restricted minimum and the average). Further, as an aside, under the average specification, the value of produce per household for Dasamantapur and Lamtaput is also greater than that for baseline.

Table 9: Comparing Year One of Intervention with Baseline through Alternative Specifications

Reference	Specifications	<i>Mandia</i>			All Millets		
		Q/Ha	₹/Ha	₹/No <sub>p</sub>	Q/Ha	₹/Ha	₹/No <sub>p</sub>
Baseline	Survey	5.83	9443	3652	5.79	9447	3957
Year One	AS1 Restricted Min	11.57	18805	11175	11.35	18503	11155
	AS2 Average	16.70	27260	16200	16.39	26828	16174
	Estimate Proposed	12.99	21097	12538	12.72	20710	12486
Year One change over Baseline (%)	AS1 Restricted Min	98.5	99.1	206.0	96.2	95.9	181.9
	AS2 Average	186.7	188.7	343.5	183.3	184.0	308.7
	Estimate Proposed	122.9	123.4	243.3	119.8	119.2	215.5

Note: As in Tables 1 to 8. AS1 and AS2 are alternative specifications with restricted minimum and average, respectively. AS1 uses the minimum if there are at least three crop cutting experiments, AS2 is average of the experiments. Estimate Proposed is minimum of the experiments.

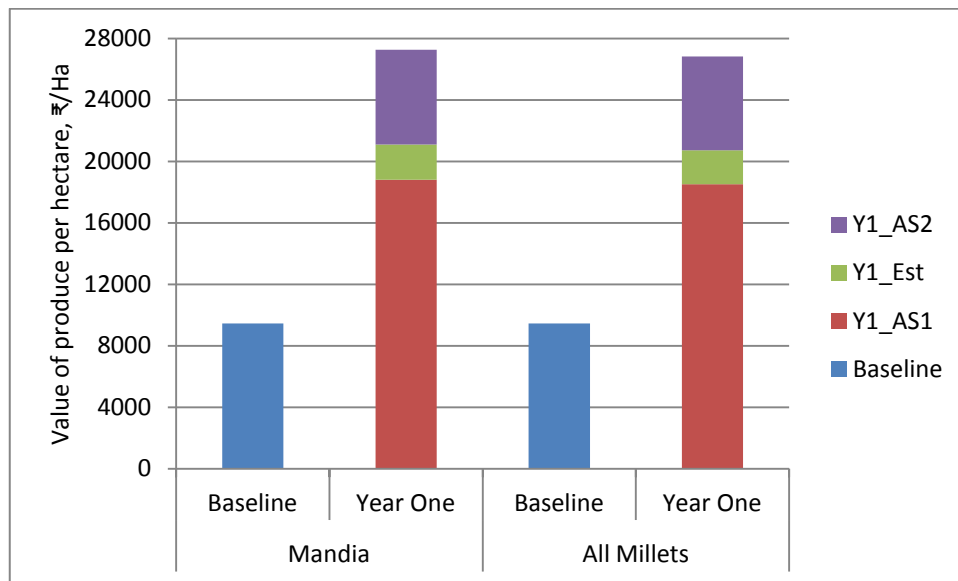
Figure 3: Comparing Yield of Baseline with Specifications for Year One



Note and Source: As in Table 9. Y1\_AS1 is Year One under Alternative Specification 1 with restricted minimum where the minimum of crop cutting experiments is taken only when there are three experiments. Y1\_AS2 is Year One under Alternative Specification 2 where the average of experiments is taken. Y1\_Est is our proposed estimate where minimum of experiments is taken.

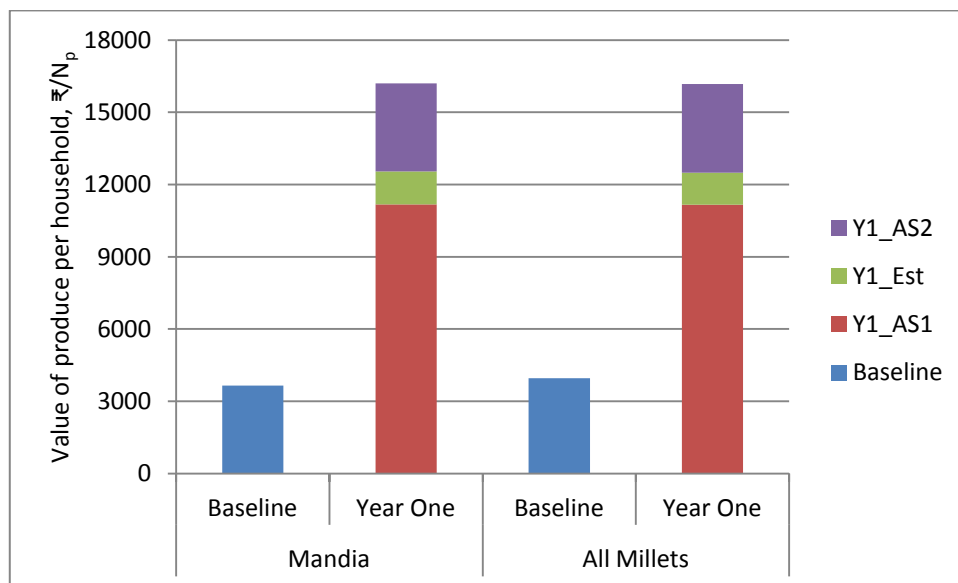


Figure 4: Comparing Value of Produce per Hectare of Baseline with Specifications for Year One



Note and Source: As in Table 9 and Figure 3.

Figure 5: Comparing Value of Produce per Household of Baseline with Specifications for Year One



Note and Source: As in Table 9 and Figure 5.

The aggregate results from our proposed method (minimum of yield from crop cutting experiments at the block level controlled for season, crop and method), which lies between the two extreme alternative specifications, seems reasonable.<sup>3</sup> Besides, in the baseline, there is the possibility of

<sup>3</sup> As an aside, this reminds one of minimax where the optimal lies between extremes, von Neumann and Morgenstern (1953), also see Mishra and Kumar (1997a,b). The circumstances, in the current context, has led us to consider the average as one of the extreme, but then that is an independent matter, a caution to guard against possible selection bias.

overestimating self-reported production.<sup>4</sup> Given these, one may state that in the first year of intervention under Odisha Millets Mission, average area under millets per farmer household has increased by more than two-fifths, yield and value of produce per hectare have more than doubled, and value of produce per farmer household has more than trebled. This is commendable, as for the last nearly four decades, since 1980s, area under millets and production of millets in Odisha have been declining (Jena and Mishra, 2019).

## 7 Conclusion

This report uses yield from crop cutting experiments to estimate production in 2017-18 and then superimpose prices from baseline to arrive at value of produce in constant 2016-17 prices. These provide some estimates of average area cultivated, yield, value of produce per hectare, and value of produce per household that could be compared with the baseline estimates. This involved a process to examine crop cutting experiment reports based on their legibility, availability of information, and authenticity of information.

As this was the first year of intervention and to guard against the possibility of selection bias in the choosing of plots for crop cutting experiments in favour of those with better yields, it was decided to make use of minimum yield from the crop cutting experiment reports for the block after controlling for season, crop and method. This minimum yield was used to estimate production on the area cultivated, as per tracking sheets provided by the Programme Secretariat. The tracking sheets are subject to verification at multiple levels, and hence, it is possible that the version for some blocks may not match with the final list of participants who received incentives, but this should not be a major concern for the current exercise where average indicators have been used for comparing with baseline scenario. Further, as indicated earlier, we obtained from the estimated production the value of produce in real terms by using constant prices from baseline.

The average indicators like area under cultivation of millets per farmer household, yield, value of produce per hectare and value of produce per farmer household have been compared with the baseline. These also went through robustness check by two alternative specifications. The results indicate that average area under cultivation of millets per farmer household has increased by more than two-fifths, yield and value of produce per hectare have increased by more than two times and the value of produce per farmer household has increased by more than three times.

The achievement of Odisha Millets Mission, in the first year of its intervention, rightfully deserves accolades. However, for logistic reasons, it has largely been *mandia*-centric and has to go beyond that, to other nutri-cereals, towards its mandated *pusti shasya* (ପୁଷ୍ଟିଶାସ୍ୟ) mission. The mission also needs to increase coverage during *rabi*.

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<sup>4</sup> This has been indicated for smallholders by Gourley, Kilic and Lobell (2019) based on farm level data from Uganda in Sub-Saharan Africa in the context of discussing inverse relationship between farm size and yield. For recent discussions on inverse relationship in the Indian context using nationally representative data, see Gaurav and Mishra (2015, 2019), and Mishra and Singh (2019).

Annexure 1  
Programme Secretariat Personnel

Position	Name of the Officer
Former State Coordinator	Mr Dinesh Balam
State Coordinator	Ms Ashima Chaudhary
Former Regional Coordinator (Kandhamal, Nuapada, Bolangir, Kalahandi)	Mr Ramani Ranjan Nayak
Research Coordinator	Mr Susanta Sekhar Choudhury
Regional Coordinator (Sundergarh, Ganjam, Mayurbhanj, Keonjhar, Koraput)	Mr Shubham Sharma
Regional Coordinator (Nawarangpur, Bargarh, Kalahandi, Bolangir, Nuapada)	Mr Narendra Kumar Barik
Former Regional Coordinator (Gajapati, Kandhamal, Rayagada)	Ms Sasmita Nayak
Finance Officer	Mr Bishnu Prasad Sahoo
Finance Officer	Mr Sagar Patnaik
Marketing Expert	Mr Harihar Maharana
Clerk-cum-Accountant	Mr Jnanajit Barik
Information and Technology Officer	Mr Rakesh Kumar Sahu
Events Coordinator	Ms Sabnam Aferin
Research Officer	Mr Pulak Nayak
Graphic Designer	Mr Bablu Purty
District Coordinator, Gajapati	Mr Raghunath Sahu
District Coordinator, Kalahandi	Mr Aditya Singh Deo
District Coordinator, Kandhamal	Mr Rama Chandra Tosh
Additional District Coordinator, Kandhamal	Mr Yashwant Baliarsingh
Former District Coordinator, Koraput	Mr Aswini Das
District Coordinator, Koraput	Mr Sibasankar Sethi
District Coordinator, Koraput	Mr Trinath Taraputia
District Coordinator, Malkangiri	Mr Prakash Ch Mallick
Former District Coordinator, Nuapada	Mr Biswa Shankar Das
District Coordinator, Nuapada	Mr Manash Nayak
Former District Coordinator, Rayagada	Mr Niranjan Gauda
District Coordinator, Rayagada	Mr Malay Kumar Sahoo
Additional District Coordinator, Rayagada	Mr Lalbihar Gomango

## Annexure 2

## District-wise Facilitating Agency and Community Based Organization

District	Block	Facilitating Agency	Community Based Organization
Gajapati	Gumma	Centre for Community Development (CCD)	Moriyam Mahila Sangha
	Mohana	Social Action for Community Alternative Learning (SACAL)	Taptapani Farmers Producer Company Ltd
	R Udayagiri	Suraksha	Maa Kureisuni Producer Company Ltd, Ramagiri
	Rayagada	Society for the Welfare of the Weaker Section (SWWS)	Mahendragiri SHG
Kalahandi	Bhawanipatna	Development Agency for Poor and Tribal Awakening (DAPTA)	Maa Manikeswari Pariba Utpadankari Samabya Samiti Ltd
	Lanjigarh	Janasahajya	Anchalika Agri Producer Company Ltd
	Narla	Sahavagi Vikas Abhiyan (SVA)	Manikeswari Agri Producer Company Ltd
	Th Rampur	The Human Development	Pragati Multipurpose Co-operative Society Ltd
Kandhamal	Daringbadi	Jagruti	Pahadi Farmers Producers Company Ltd
	Kotagarh	Nirman	Kandhamal Farmers Producers Company Ltd
	Phiringia	Aragamee	Phiringia Anchalika Mahila Mahasangha
	Raikia	Social Welfare Agency and Training Institute (SWATI)	Surgabhata Farmers Producer Company Ltd
Koraput	Boipariguda	Centre for Youth and Social Development (CYSD)	Sabujima Producers Company Ltd
	Borigumma	Harsha Trust	Maa Santoshi SHG
	Dasamantapur	Development of Humane Action (DHAN) Foundation	Kalanjiam Cluster Sangha
	Kundra	M S Swaminathan Research Foundation (MSSRF)	Mahila Sawayan Sahayak Gosti
	Lamtaput	Professional Assistance for Development Action (PRADAN)	Nari Shakti Mahila Maha Sangha
	Nandapur	Pragati	Jaivik SRI farmers Producers Company Ltd
	Semiliguda	Development of Humane Action (DHAN) Foundation	Deomali Kalanjiam Maha Sangha
Malkangiri	Chitrakonda	Sishu O Mahila Kalyan Samity (SOMKS)	Krushak Anchalika Sadhan Kendra
	Khairput	Madhyam Foundation	Panipariba Utpadanakari Mahila Samabaya Ltd.
	Korukonda	Tagore Society for Rural Development (TSRD)	Prayas Anchalika Seva Kendra
	Mathili	Parivartan	Subash Bose Gosthi Sadhan Kendra
Nuapada	Boden	Palli Vikas	Marjyada Farmer Producer Company
	Komana Sinapali	Ahinsa Sahavagi Vikas Abhiyan (SVA)	Maa Mahalaxmi SHG Jay Jaganath UVS
Rayagada	Gudari	Jagaran	Biswaradharani SHG
	Gunupur	Asha	Pathima SHG
	Rayagada	Orissa Professional Development Service Consultants (OPDSC)	Arati SHG

Note: SHG denotes Self-Help Group, UVS denotes Udyan Vikas Samitee

## Annexure 3

## Agriculture Department/Directorate and District Officials

Office	Position	Name of the Officer
Department of Agriculture and Farmers' Empowerment	Former Agriculture Production Commissioner (APC)	Mr Gagan Kumar Dhal, IAS
	APC	Mr Pradipta Ku Mohapatra, IAS
	Former Principal Secretary	Mr Manoj Ahuja, IAS
	Principal Secretary	Dr Saurabh Garg, IAS
	Former Special Secretary	Mr Bhaskar Jyoti Sarma, IAS
	Special Secretary	Dr Pramod Kumar Meherda, IAS
	Former Agriculturist	Mr Basant Kumar Sar
	Agriculturist	Mr Pramod Kumar Samal
Directorate of Agriculture and Food Production	Former Director	Dr Ananda Chandra Sasmal
	Director	Mr Hari Ballav Mishra, IAS
	Former Joint Director Agriculture (JDA), Millets/Integrated Farming	Dr M Muthukumar, IAS
	JDA Millets/Integrated Farming	Mr Kashinath Khuntia
	Assistant Director Agriculture (ADA)	Mr Bhabani Sankar Mohapatra
	Former Assistant Agriculture Officer (AAO)	Mr Ram Chandra Nayak
	Former AAO	Mr Ansuman Pattnayak
	Former AAO	Mr Sanjay Kumar Pani
Gajapati District	Former Collector	Ms Manasi Nimbhal, IAS
	Collector	Mr Anupam Saha, IAS
	Deputy Director Agriculture (DDA)	Mr Promod Kumar Mishra
	District Agriculture Officer (DAO)	Mr Bijaya Kumar Pradhan
	Scheme Officer	Mr Chaitanya Charan Sahoo
	AAO, Gumma	Ms Sanghamitra Pradhan
	AAO, Mohana	Mr Bhabendra Murmu
	AAO, R Udayagiri	Mr Suryakanta Sethy
Kalahandi District	AAO, Rayagada	Mr Dibyaswarup Panda
	Former Collector	Mr Anjan Kumar Manik, IAS
	Collector	Dr Parag Harshad Gavali, IAS
	Chief District Agriculture Officer (CDAO)	Mr Narendra Kumar Behera
	DAO-cum-Project Director (PD)	Mr Antaryami Mallick
	Scheme Officer	Ms Pujarani Bag
	AAO, Bhawanipatna	Mr Khulana Kuawar
	AAO, Lanjigarh (also Narla)	Mr Sudhansu Meher
Kandhamal District	AAO, Narla	Ms Sibani Pradhan
	AAO, Th Rampur	Mr Soubhagya Behera
	Collector	Dr Brunda D
	DDA-cum-PD ATMA	Mr Pradeep Kumar Rath
	Scheme Officer	Mr Hemant Kumar Das
	AAO, Raikia	Mr Sudeepta Pradhan
	AAO, Phiringia	Mr Sabyasachi Das
AAO, Daringbadi	Mr Pabitra Mohan Sahoo	
AAO, Kotagarh	Mr Jyoti Ranjan Mishra	

Continued

## Annexure 3

## Agriculture Department/Directorate and District Officials

Office	Position	Name of the Officer
Koraput District	Former Collector	Mr K Sudarshan Chakravarthy, IAS
	Collector	Mr Madhusudan Mishra, OAS (SAG)
	DDA, Koraput, Jeypore	Mr Kalidas Biswas
	DAO, Jeypore	Mr Umesh Chandra Sahoo
	DAO, Narayanpatna	Mr PVR Rao
	DAO, Koraput	Mr Subrat Kumar Rath
	DAO, Nandapur	Mr Sarat Kumar Mohapatro
	Farm Management Specialist, Jeypore	Mr DS Bariha
	Water Management Specialist, Jeypore	Mr Ajit Kumar Giri
	Training Officer, Jeypore	Mr Jagannath Nanda
	AAO (Jute), Jeypore	Mr Sashibhusan Senapati
	ADA (Input), Jeypore	Mr Biswaraj Rath
	AAO (Input), Jeypore	Mr Tusar Ranjan Swain
	AAO (Input), Jeypore	Ms Annapurna Behera
	Plant Production Officer (Oilseed), Jeypore	Mr Gokul Chandra Nayak
	AAO (Sugarcane), Jeypore	Mr Kailash Panda
	AAO (Information), Jeypore	Mr Rajani Kumbhar
	AAO, Jeypore (I)	Mr G Satyanarayan
	AAO, Jeypore (II)	Mr Purna Chandra Burudi
	AAO, Kundra	Mr Debasish Mallick
	AAO, Digapur	Mr Nrimalya Kumar Naik
	AAO, Boipariguda	Mr Ramesh Chandra Naik
	AAO, Ramagiri	Ms Monsoon Khemundu
	AAO, Borigumma	Mr K Jeetendra Rao
	AAO/Assistant Seed Production Officer, Kusumi	Mr Shitikanta Das
	AAO, Kotpad	Mr Seetakanta Rout
	AAO, Narayanpatna (I)	Mr Gabriel Dung Dung
	AAO, Narayanpatna (II)	Mr Bharat Bhusan Mallik
	AAO, Laxmipur	Mr Sudarsan Dehury
	AAO, Kakiriguma	Mr Suryakanta Nahak
	AAO, Kumbhariput	Mr Subash Ch Behera
	AAO, Bandhugaon	Mr Basudev Bisoi
	Plant Production Officer, Nandapur	Mr Sanjaya Kumar Dalei
	AAO, Nandapur	Mr Hrusikesh Kanhar
	AAO, Pottangi (I)	Mr Abhimanyu Swain
	AAO, Pottangi (II)	Mr Kanhu Ch Khuntia
AAO, Machakund	Mr Ramchandra Behera	
AAO, Koraput (I)	Mr Ranjan Kumar Pattnaik	
AAO, Koraput (II)	Mr Mahesh Kumar Padhy	
AAO, Dasamantapur	Mr Tapas Chandra Roy	
AAO, Semiliguda	Ms Subharshree Bandita	
AAO, Kunduli	Mr Rajendra Nath Naik	

Continued

Annexure 3

Agriculture Department/Directorate and District Officials

Office	Position	Name of the Officer
Malkangiri District	Collector	Mr Manish Agarwal, IAS
	DDA	Mr Ramachandra Patnaik
	DAO	Mr Kailash Chandra Swain
	AAO, Chitrakonda	Mr Krushnapada Mukherjee
	AAO, Khairput	Mr Kishore Chandra Dwibedy
	AAO, Korukonda	Mr Chandra Sekhar Bhumia
	AAO, Mathili	Mr Jagdish Kumar Choudhury
Nuapada District	Former Collector	Dr Poma Tudu, IAS
	Collector	Ms Madhusmita Sahoo, IAS
	DDA	Mr Md Jahed
	DAO	Mr Bishnu Prasad Nayak
	Scheme Officer	Mr Sudhansu Sekhar Sahoo
	AAO, Boden	Mr Yogeswar Triwedi
	AAO, Komana	Mr Tankadhar Tanti
AAO, Sinapali	Mr Sanjay Kumar Sahoo	
Rayagada District	Former Collector	Ms Guha Poonam Tapas Kumar, IAS
	Collector	Mr Pramod Kumar Behera, OAS (SAG)
	DDA	Mr Rabindranath Khuntia
	DAO	Mr Krushna Chandra Sing
	Scheme Officer	Mr Bhibudendu Dey
	AAO, Rayagada	Mr Dushmanta Swain
	AAO, Gunupur	Mr Priyanatha Patra
AAO, Gudari	Mr Sanatana Behera	

Note: Officials indicated are during the time of data processing.

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## About NCDS, Bhubaneswar

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