



DRISHTEE
SUSTAINABLE COMMUNITIES

Tech-Led Innovation for Rural Entrepreneurs

Inter IIT Tech Meet 9.0

- Problem Statement
- Contractual Farming
- Proposed Solution : Balram.AI
- Value Chain
- Technical Solution
- Implementation Plan
- Financial Analysis
- Impact on Rural Economy
- Growth Strategy
- References

Submitted by:
Team **14**

PROBLEM STATEMENT

You need to come up with Tech-led innovation(product/service) that utilizes and/or upskills the capacity of rural youth, improves market linkages/marketing, and optimises supply chain of products/services from rural to urban, semi-urban and rural markets, in a profitable and sustainable manner for the rural producer communities/grassroot entrepreneurs.

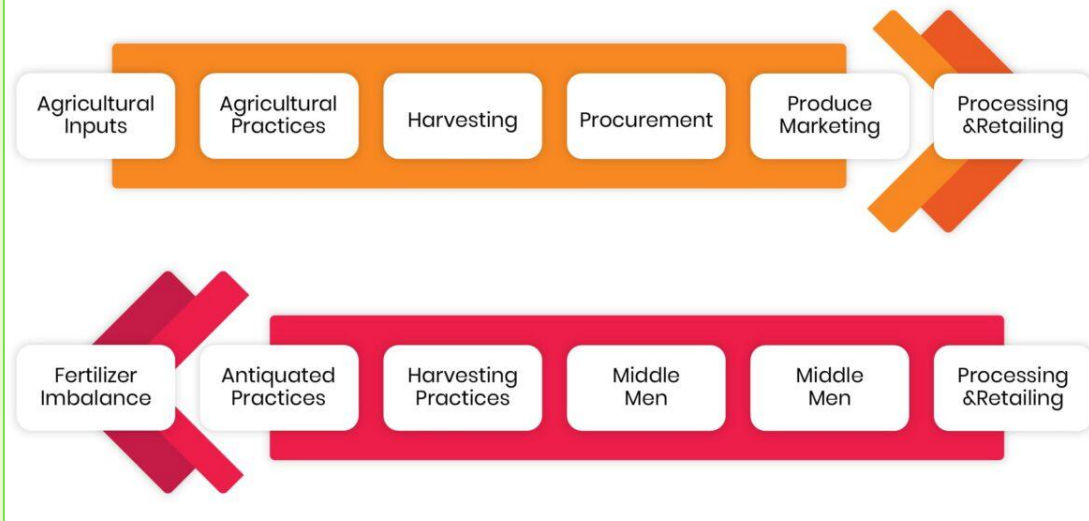
MAJOR PROBLEMS FOR RURAL PRODUCER

- Low Market Price for Crops
- Low Capital
- Non-availability of Irrigation Facilities
- High risk of crop failure
- Technical unawareness
- Low bargaining power

ADDITIONAL FACTS & FIGURES

- More than 85% small farmers have land less than 2Ha
- Large no. of irrigation depend on tubewells
- Low irrigation facility :More than 30% holding remain unirrigated
- Low daily wages
- Only 30% small small farmers take credit

Agricultural Value Chain



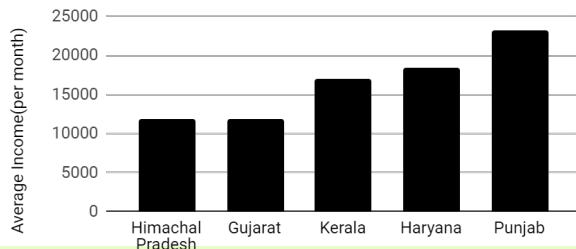
Consumer Insights

Various Types Of Farmers Based On Landholdings

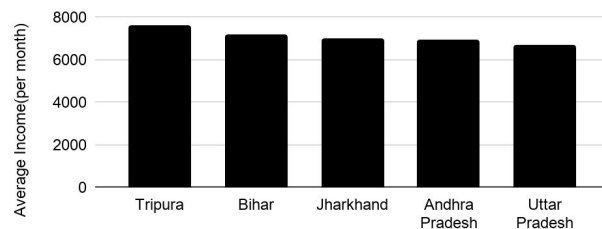


Agriculture and allied sectors contribute \$368 Bn to the economy but its 16% share in India's GDP isn't an indicator of the financial inclusion of small and marginal small farmers which constitute over 86% of overall farmer population. Over 50% of India's small and marginal small farmers are unable to borrow from any source — tech or traditional — leading to a host of issues in production and hence low income. **We will majorly focus on the Small and Marginal farmers, because of the huge scope of development with very high Impact on rural economy**

Average Income(per month) vs. State(Top 5)



Average Income(per Month) vs State(Bottom 5)



Agriculture being only source of income for 41% total population

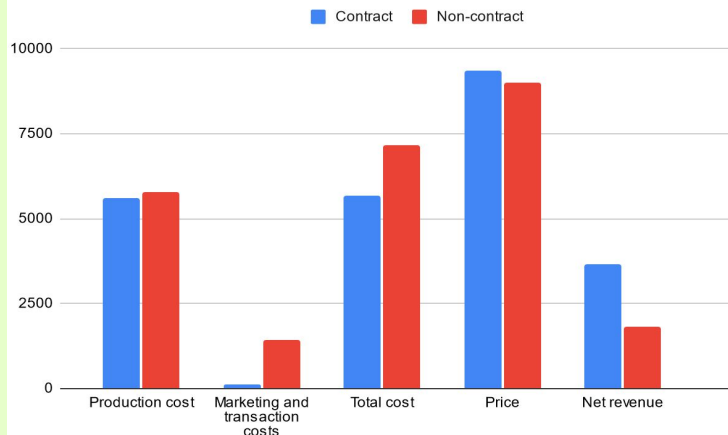
Annual Average Income:- **INR 1,07,172/-**
Average Loan on Farmer :-
INR 47,000/-
51.7% small farmers are in Loan Debt

CONTRACTUAL FARMING

Contractual farming in some extent can be solution to above stated problems :

- ❖ It provides a low-risk income source to the small farmers.
- ❖ It helps them stabilise their earning as well as to increase it.
- ❖ In this practice, the company helps the small farmers to increase their yield by providing high tech inputs.
- ❖ It improves the quality of soil as the small farmers grow various types of crops in rotation according to their contracts.

Contract V/S Non-Contract (MILK)



Contract Farming Pros and Cons

Pros

Low risk - fixed source of income

Average income is more than Non contractual farmers

Access to modern farming practices

Sustainable production

Cons (Farmers)

Low risk - fixed source of income

Inefficient management or marketing problems can lead to wastage

Bargaining power lies in the hands of company

High production cost

Cons (Company)

Farmers' inability to produce to managers' specifications due to economic, physical and social reasons.

Poor management and lack of consultation with farmers may lead to farmer discontent.

Extra-contractual marketing by Farmer

Farmers may divert inputs supplied on credit to other purposes, thereby reducing yields.

But only 12% of the small farmers are involved in contractual farming who belongs to the small and marginal farmers category, which holds for 86% of the total small farmers, which are a substantial percentage of the community of small farmers, the rest 88% are medium and large farmers and which accounts 14%.

CONTRACTUAL FARMING

EXISTING STRUCTURE

- Small Farmers cultivate at their own resources
- Traditional old practice followed in farming
- Traders buy from small farmers paying low prices
- Corporate buy from traders paying higher commission
- No assurance of quality for corporates
- Neither small farmers nor corporates get benefited

PROBLEMS IN EXISTING STRUCTURE

FARMER SIDE :

- Corporate exploit small farmers because of low bargaining power.
- Corporate don't pay the predetermined amount in case of low quality
- Farmers have to bear losses in case of crop failure
- Delay in payment of produce was the most important constraint

CORPORATE SIDE :

- Violation of terms and conditions by some small farmers
- Farmer's negligence in maintaining quality
- Lack of proper management by company
- Inability to provide proper transport facilities to small small farmers

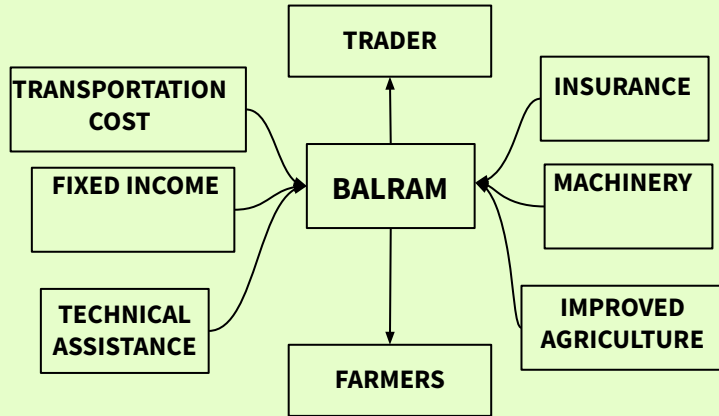
PEPSICO - NESTLE SUCCESS STORY

- Strong focus on R&D for field preparation
- Improved Crop Management Technique
- Trained Executives
- Complete Assistance
- Availability of Equipments
- Effective communication chain
- Regular and Timely Payment
- Improved Logistics System

Why Contractual farming is not successful for small companies ?

- Large amount of resources needed: transport, storage, capital
- Lack of RnD
- Complex monitoring
- Lack of rural network
- Rural illiteracy making deals difficult needs highly convincing Middlemen

PROPOSED SOLUTION - BALRAM AGRI SOLUTIONS



YIELD SCORE

(a) How will we solve the problem for Farmers ?

- Improved Technical methodology
- Continuous Monitoring
- Improved Seeds & Fertilizers
- Support during weather emergencies.
- Financial need
- Equipment renting

(b) How will we solve the Problem for Corporates ?

- Most small to mid-sized companies don't have enough resources to spend on R&D like lays, nestle or other big players.
- We come into the picture, we will solve this by creating a R&D department of our own that will support many different companies.
- We will provide the required quantity food products of the required quality.

- Yield Score is a parameter to rate a farmer based on Land availability, irrigation facilities, credit history and other factors
- The orders will be assigned to small farmers based on their Yield Score to ensure quality.
- A farmer following all guidelines of BALRAM will have higher Yield Score.
- Additional facilities and different contract options will be given to small farmers with higher Yield Score

PROPOSED SOLUTION: FLOW

Balram Internal Process

TRADERS

Sign Up on Platform
Enter Business Details
Select Orders
Confirm Order
Balram Team will verify the order
Order Confirmation & Contract Generation
Contract Sign & Order Tracking
Quality Report
Order Delivered

Account Creation

Verify Business

Land Availability
Soil Quality
Irrigation facilities
Bank Statement
Personal Information
Machinery & Labour

Check if we were able to deliver

Confirm with Team

Contract Officer will discussion with Trader for documentation

Regular Order Update

Storage Facility to trader Shop

Collect Order & Transport to Storage Facility

Account Creation

Show orders on basis of Yield Score

Confirmation with Farmer for Contract Generation

Contract Officer will visit small farmers for discussion and documentation

Quality Officer will tri-weekly visit farms to monitor the situation

Regular Assistance, warnings and monitoring of status through internal system

Quality Check

FARMERS

Detail Collection by Balram Team

Sign In Using OTP

Browse Orders, Rent Machine, My Orders
Fertilizers, Seeds, Assistance

Choose Order & Contract Type

Documentation & Contract Sign

Regular Updates

Order Pick Up

DEMO VIDEO : BALRAM PRODUCTS



Balram
Agri Services

The video player shows a landscape with a green field in the foreground, a line of trees in the middle ground, and a clear blue sky. The text 'Balram Agri Services' is overlaid in the center.

[Click Here to View](#)

BALRAM- FARMER SIDE

Enter details to get Yield score

- Land size
- Water availability
- Capital availability
- Experience

Registration
successful

Select your order and then contract among available choices

Our Executive connects
with the farmer to get
the contract signed and
update the same on
Admin dashboard

Complete details of the order in Dashboard along with suggested approach

Farmer starts growing
crop and keeps
updating the checklist
and giving updates on
crop health by images

Yield is procured from farmer with a designated unique ID having background details of crop such as fertilizers used and quality standard

Video tutorials, Success
stories, 24*7 Assistance,
Dynamic analysis of crops

Balram's Farm specialist
will visit biweekly to the
Farms for the crop
inspection.

Using ML/AI, the crop's health will be judged and suggestions would be given on the basis of environmental factors

BALRAM CORPORATE SIDE

**Sign in & Place order through
Balram Corporate App**

**Discussion on contract terms
and deal closure**

**Contract signed and order
placed**

Payment

Quality
check by
company

The company is
allowed to cancel
orders upto a
certain time and
can do so using
the application.

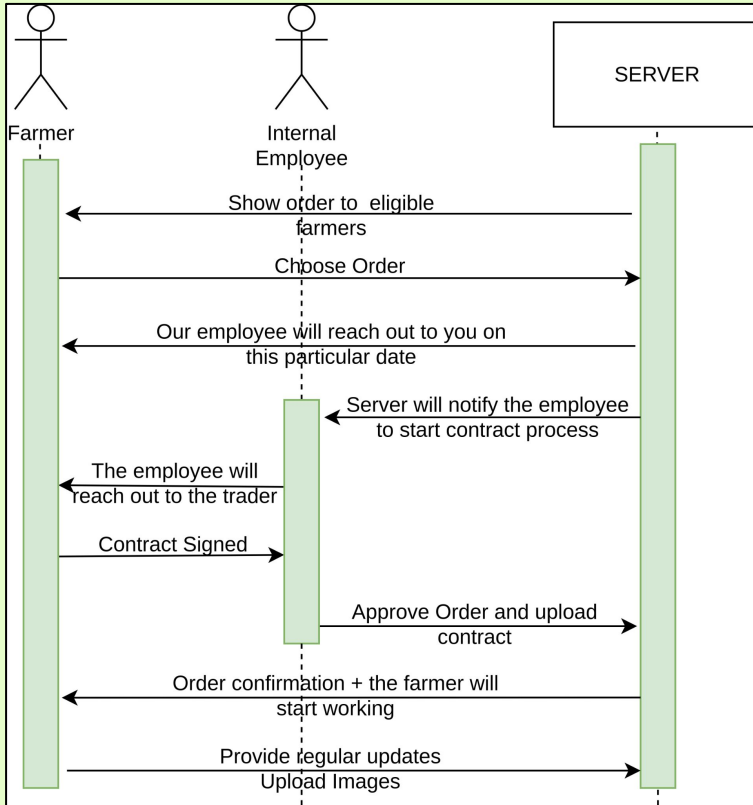
After the crop season

- The crops quality will be checked and details of the same will be made available on the app dashboard
- The crops will be picked up by Balram's Logistics Division and the same will be updated on the dashboard.
- Crops will be delivered to the company

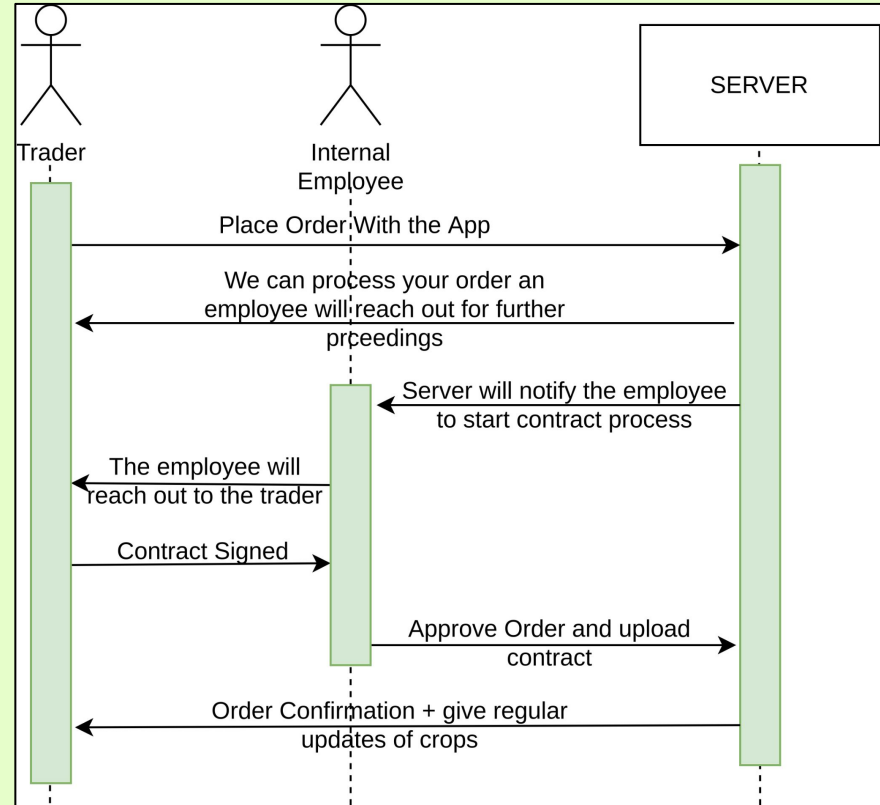
Crop Season

- The state of the crops will be regularly updated by the small farmers and will be available for the company to look at.
- Everything related to the crops will be available on a dashboard on this app which the company can look at to see for any update/issue.
- The company will be able to look at the complete supply chain of the products.

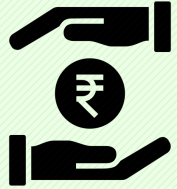
Process Flow : Farmer -> Server



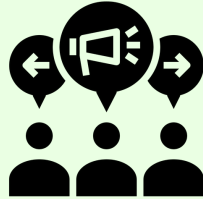
Process Flow : Trader -> Server



BALRAM - HAL : Additional Services



Financial Loans and Insurance Facilities through collaborations with NBFCs & Banks



Regular tips and suggestions to improve productivity and about the new Govt. schemes



Providing small farmers with a fair comparison on Agricultural needs like Machinery, Seeds, Fertilizers, etc. so that they can make an informed decision



Suggesting video tutorial for small farmers to promote better farm practices

WHY FARMERS WILL OPT BALRAM ?

1. CONTRACT FLEXIBILITY

- Fixed Income Source with some percentage of the total sale. This will maintain a constant flow of Income for Farmers.
- Better Price than Market Price

2. LOW RISK

- Balram will abide by the contract irrespective of variation in market price
- Balram will buy the produce at pre decided price irrespective of crop quality

3. ASSISTANCE FROM EXPERTS

- Technical Assistance from agriculture experts during the process and get the best technology for producing their crops.
- Knowledge about market demands and is more profitable according to their Land Area, Soil Quality, Irrigation Facilities.

4. FINANCIAL ASSISTANCE

- Crop Insurance and low interest rate loan assistance
- Reduce Farmers dependency on Large Farmers and Money Lenders
- Timely Payments

WHY CORPORATES WILL OPT BALRAM ?

1. CONTRACT FLEXIBILITY

- Ability to cancel order before a fixed period

2. COST SAVING

- Balram will bear loss in case of crop failure
- Transportation cost by Balram

-3. SUPPLY CHAIN AUTOMATION

- Order Tracking and Quality Report regularly

4. Quality Assurance

- Balram will provide quality assured crops

IF CONTRACT CONDITIONS ARE NOT MET ?

PROBLEMS

BALRAM REACTION

In case of Crop Failure due to environmental reasons

Balram will bear the cost in case of extreme weather events

Low Quality of Produce

Balram will then abide by the agreement for the client, Balram will bear the additional cost for new produce from the Market

Farmer rescind the contract agreement at any point

Farmer Yield Score will be reduced. Balram will not penalise farmer in such case but his probability of getting a contract in future will be reduced

Extra produce

Balram will store it and can sell it according to the situation

Implementation Plan

- **We will start with 50 traders and 25 small farmers as Pilot Project.**
- Initial Yield Score will be determined on the basis information collected by small farmers.
- The orders will then be assigned on the basis of Yield Score.
- **Additional benefits and rewards will be given to small farmers if they maintained a great Yield Score.**

Monitoring Process

- Tri weekly visit by a officer to monitor the progress
- He'll keep updating the dashboard
- Provider small farmers with extra assistance required if any
- Regular check of crop images sent by farmer
- Checklist doctored according to needs of each farmer

Teams Required

- Developers
- Customer Relation Team
- Legal Team
- Business Development Team - Client(Co-operate)
- Farmer Experts
- Designers
- Supply Chain Managers
- Business Development Team - Farmers
- Quality Assurance Team

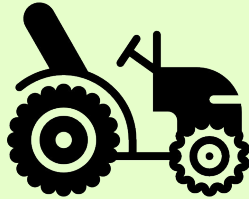
Additional Resources Required

**These extra resources will be required to handle the large small farmer population so that they don't face any friction between onboarding and procurement.*

- Due to large number of small farmers involved in the process may create a friction in the process and also increase the need of additional resources with time.
- This will bring new challenges for the team and our model should be able to sustain.



**High number of
Legal
Stakeholders**



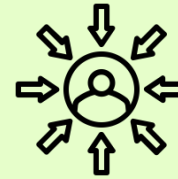
**Deployment
of Technical
facilities will
be hard**



**More
Transportation
vehicles will be
needed**



**High
number of
customer
requests**



**Difficulty in
Managing high
number of
Stakeholders**



**Difficulty in creating
Technological
Awareness**

FINANCIAL MODEL

We are using a Bottom Up approach to find out the financial health of our business model. In a bottom-up approach, we start with basic assumptions (e.g., sales people needed and the cost thereof, attractiveness of our business, traffic) in order to build the financial model. The bottom-up approach can give a more structured, realistic perspective, which can be complemented from a strategic perspective. Here we have assumed to scale up the business with an initial use case of 50 clients (traders and small merchants) and 25 small small farmers with a team of 15 members. For the complete product cycle, we have evaluated the financial health for a time period of 3 months.

Assumptions

- ❖ We have not included the initial cost to kickstart the business.
- ❖ We will offer lower price than market price to small traders and merchants for initial customer acquisition
- ❖ We will offer higher price than market price to small small farmers for increased income and low risk
- ❖ We have not included minor costs because of complex calculations.
- ❖ We assume that Balram start dealing with 5 types of crops.
- ❖ Equal order amount from different traders.
- ❖ Assumed Crop Seasonal Timeline : 3 months

	No. of Traders	Types of Crops Order	Quantity per Trader	Total Quantity	Quantity per Type	No. of Farmers	Allocated Crop to Farmers
Quantity	50	5	1500 Kg	75000 Kg	15000 Kg	25	3000 Kg

EXPENDITURE

Operational Cost			
Team	No.	Salary per Employee	Expenditure Per Month
Developers	2	25000	50000
CRM Team	2	15000	30000
Legal Team	1	20000	20000
Business Development - Traders	2	25000	50000
Famer Experts	1	20000	20000
Designers	1	15000	15000
Supply Chain Managers	2	15000	30000
Business Development - Farmers	2	15000	30000
Quality Assurance Team	2	10000	20000
	15		265000

Variable Expenditure(Depend on Number of Farmer)	
Transportation Cost	120000
Storage Cost Rent	125000
Business Essentials	100000
Total	345000

Fixed Expenditure(Does Not Depend on Number of Farmers till a limit)	
Salaries (1 months)	265000
Rent	100000
Total	365000

MARGIN ANALYSIS

Existing Mandi Margin Analysis					Balram Analysis				
	Final Price for Trader	Selling Price by farmer to Mandi	Mandi Margin	Final Price for Corporate (Less than Mandi Price)	Selling Price by Farmer to Balram(Transport ation & Cold Storage Provided by Balram)	Balram Margin	Order Received	Profit Expected By Balram	
Crop 1	15	7	8	14	8	6	15000	90000	
Crop 2	20	10	10	18	11	7	15000	105000	
Crop 3	25	12	13	23	14	9	15000	135000	
Crop 4	30	15	15	28	17	11	15000	165000	
Crop 5	35	17	18	33	19	14	15000	210000	
Total						47	75000	705000	

Assumption : Mandi Middle men earns almost same margin as the buying price. They sell the crops at 2X rates to small traders and 1.5X approximately.

P&L ANALYSIS

YEAR 1

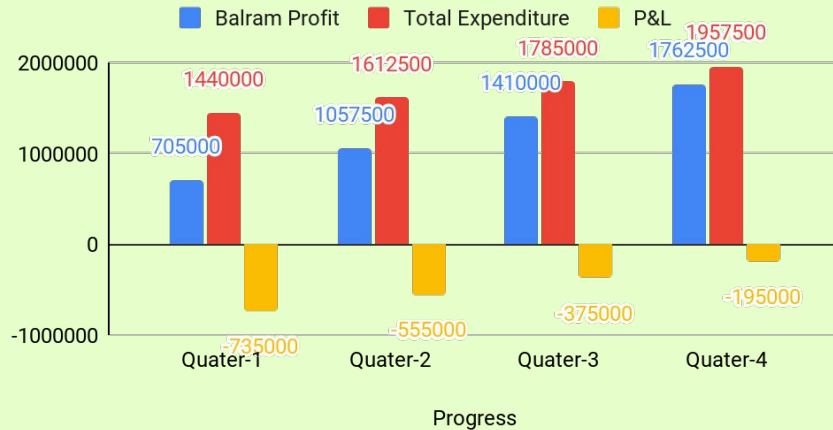
Progress	No. of Farmers	No of Traders	Order Quantity per trader	Quantity of Crops	Balram Profit	Fixed Expenditure	Variable Expenditure	Total Expenditure	P&L
Quarter-1	25	50	1500	75000	705000	1095000	345000	1440000	-735000
Quarter-2	30	75	1500	112500	1057500	1095000	517500	1612500	-555000
Quarter-3	35	100	1500	150000	1410000	1095000	690000	1785000	-375000
Quarter-4	40	125	1500	187500	1762500	1095000	862500	1957500	-195000
Total	130	350		525000	4935000	4380000	2415000	6795000	-1860000

YEAR 2

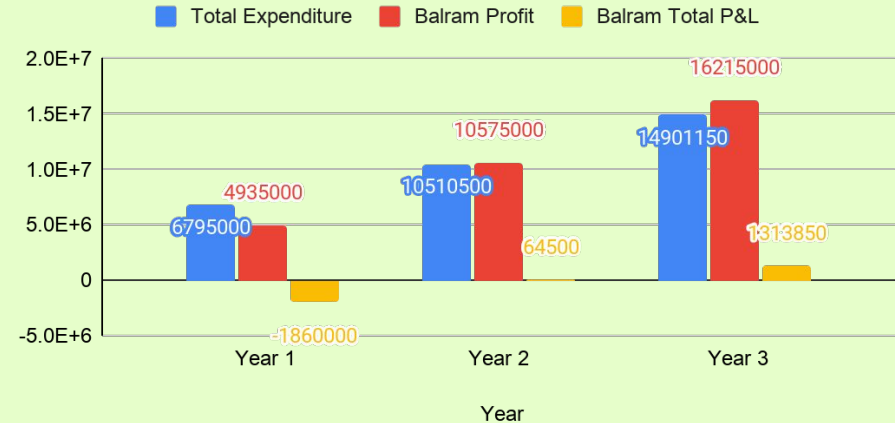
Progress	No. of Farmers	No of Traders	Order Quantity per trader	Quantity of Crops	Balram Profit	Fixed Expenditure	Variable Expenditure	Total Expenditure	P&L
Quarter-1	50	150	1500	225000	2115000	1095000	1035000	2343000	-228000
Quarter-2	60	175	1500	262500	2467500	1095000	1207500	2532750	-65250
Quarter-3	70	200	1500	300000	2820000	1095000	1380000	2722500	97500
Quarter-4	80	225	1500	337500	3172500	1095000	1552500	2912250	260250
Total	260	750		1125000	10575000	4380000	5175000	10510500	+64500

GROWTH PROJECTIONS

Balram Profit, Total Expenditure and P&L



Total Expenditure, Balram Profit and Balram Total P&L



Assumption : We are increasing our margin at 5% per annum and growth expenditure at 10% per annum
The detailed financial analysis is shown [here](#)

IMPACT ON RURAL ECONOMY

Improving Land Quality

Large corporates give contract farming to a single farmer for a very long period of time (Usually 2-5 Years). In this period the farmer grows the same crop again and again on the same field which degrades the Land quality.

Companies do this because they want to reduce their expenditure on getting new small farmers regularly but Balram will provide them this service which will be both environment friendly , will improve small farmers yield and save some money for the corporates.

Balram will make the farmer grow different crops according to the demands on the same field which will improve the Soil Quality.



Employment Generation

In order to solve this problem Balram will generate a lot of jobs for a lot of people from a very diverse background like:

- Software Developers
- Farm Specialists
- Transport and Logistics



Tech Awareness

The Product will give technical awareness and support to small farmers which will increase small farmers productivity.

Research Backed advices will be given to small farmers which will help them to produce more yield and help them to maintain land health.

Through Tech Balram will also take care of by products which will help to increase income of small farmers and reduce the pollution.



REFERENCES

- [1.] Seminar on Sustainable Contract Farming for Increased Competitiveness July 18-22, 2005, Sri Lanka
Farm-Firm Linkages Through Contract Farming in India by S SUNANDA [Team Leader – Agriculture, Water & Rural Development Division]
[Click Here to View](#)
- [2.] Contract Farming: Problems, Prospects and its Effect on Income and Employment
Jagdish Kumar* and Prakash Kumar K. Department of Agricultural Economics, G. B. Pant University of Agriculture & Technology, Pantnagar -
263 145, Uttarakhand
[Click Here to View](#)
- [3.] Making Contract Farming Work in Smallholder Agriculture Pratap S Birthal
[Click Here to View](#)
- [4.] NABARD All India Rural Financial Inclusion Survey 2016-17
[Click Here to View](#)
- [5.] Agriculture in India: Information About Indian Agriculture & Its Importance
<https://www.ibef.org/industry/agriculture-india.aspx>