



International
Fertilizer Industry
Association
IFA Africa Forum
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Hariyali Kisaan Bazaar

The experience from India

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About DSC




About DSC

- DCM Shriram Consolidated Ltd. (DSC) has its origin in over 125 year old DCM group
- DSC is a diversified conglomerate with turnover of app. 1 bn \$ and is amongst the top 100 Indian companies. Nearly 60% revenues from agri related businesses.
- Strong and trusted brands
- Leveraging state of art IT platform.
- ISO 14001, OHSAS 18001 and SA 8000 certified

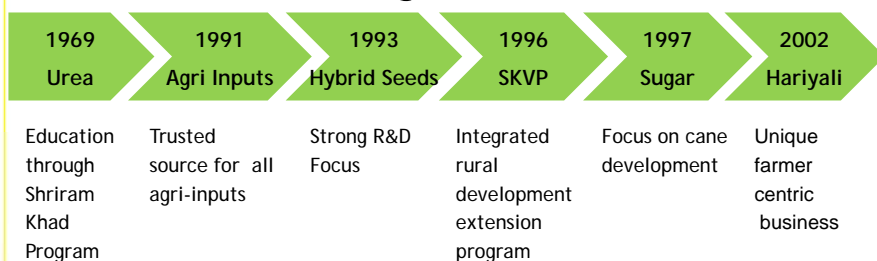


DSCL Businesses

| AGRI BUSINESS | BASIC CHEMICALS | VALUE ADDED BUSINESSES |
|---|--|--|
| <u>Farm Inputs</u> - Fertilizers <ul style="list-style-type: none"> • Urea • DAP / MOP / SSP - Pesticides - Seeds (India, Vietnam, Philippines) | <ul style="list-style-type: none"> • Chlor-Alkali • PVC Resin • Calcium Carbide • Cement | <ul style="list-style-type: none"> • Polymer Compounds • UPVC Windows • Energy Services |
| <u>Farm Output</u> - Sugar - Seeds | | |
| <u>Rural Business Hubs</u> - Hariyali Kisaan Bazaar | | |



DSCL in Agri Value Chain



A long track record of working with the Farmers



Shriram Agri Inputs

Bulk Fertilizers

- Urea
- DAP
- MOP
- SSP

Specialty Fertilizers

- Mono Potassium Phosphate
- Calcium Nitrate
- Potassium Nitrate
- Potassium Sulphate
- NPK

Agro Chemicals

- Insecticides
- Herbicides
- Fungicides
- Plant Growth Promoters
- Bio Pesticides

Micro Nutrients

- Zinc Sulphate
- Boron
- Mixtures

Seeds

- Hybrid - Field & Vegetables crop
- Open Pollinate

SHRIRAM FERTILISERS



SHRIRAM PESTICIDES



66 Products, 15 States and 10000 Retail Outlets



Shriram Bioseed Genetics India (SBGI)

- Operations spread over India, Vietnam, China, Philippines & Thailand
- Advanced biotechnology research to develop superior hybrids. Participating in the Hybrid Seed Development (HRD) Program of IRRI
- Recent successes in Maize, Cotton, Pearl Millets & Vegetable Seeds
- DSIR funding for project on Drought Resistant & Salinity Tolerant Gene



Creating solutions specific to local farming conditions



DSCCL Sugar

- Major sugar producer in India
- 4 units in central UP with a combined capacity of 33000 TCD
- Increase in sugarcane procurement from 3.5m\$ in 1997-98 to 10.5m\$ in 2006-07
- Focus on higher sugar recovery through better quality sugarcane
 - Balanced fertilization
 - Scientific agronomic practices



Transformation in income and life of over 200000 farmers

hariyali
Kisan Bazaar

Shriram Agriculture Development Programme

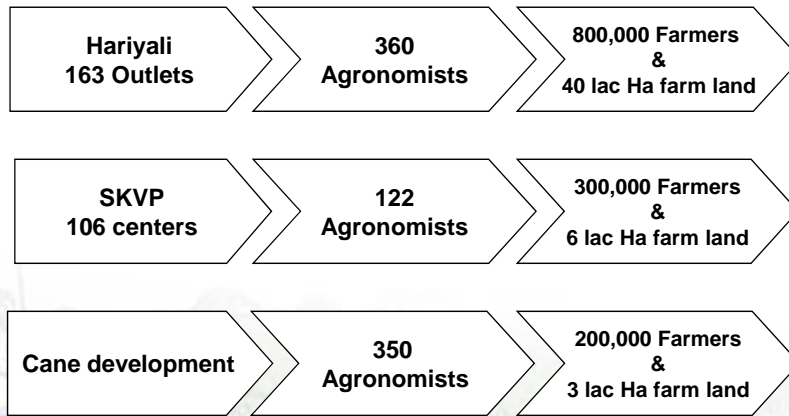
- Initiated in 1996 to fundamentally alter approach to extension work
- Identification of a village cluster. Currently 106
- Appointment of Shriram Farmer Guide, a local agriculture graduate focused on advisory & not sales.
- Development of Shriram Agriculture Development Center
- Development of services customized to local requirements
- Involvement of multi disciplinary agencies e.g.: Health services, warehousing, Agriculture Development Centers etc

Knowledge delivery through an inclusive approach



hariyali
Kisan Bazaar

DSCCL - Extension Services Reach



Servicing over 50 lac Ha with a team of over 830 qualified Agronomists

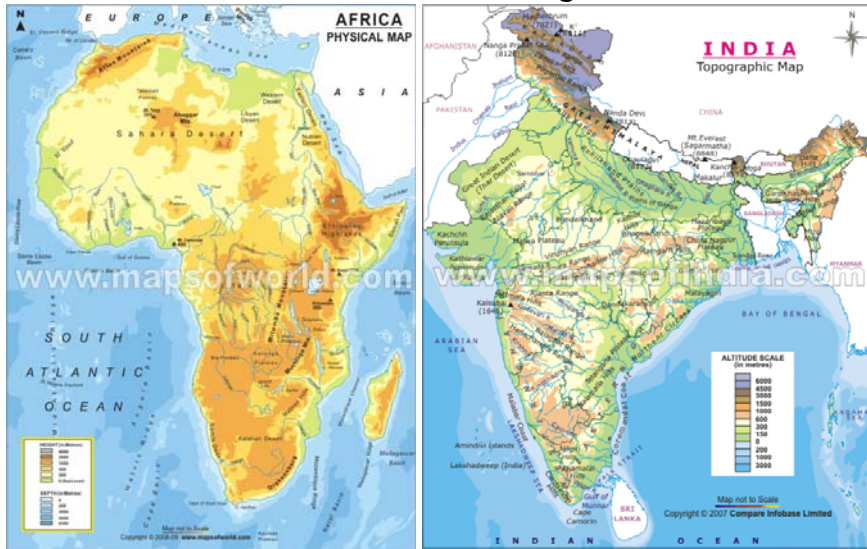


Agriculture in Africa and India

Some differences

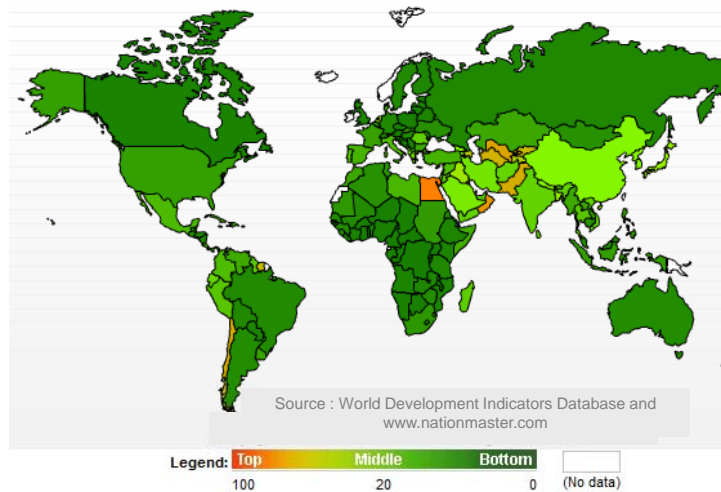


Arable land %age



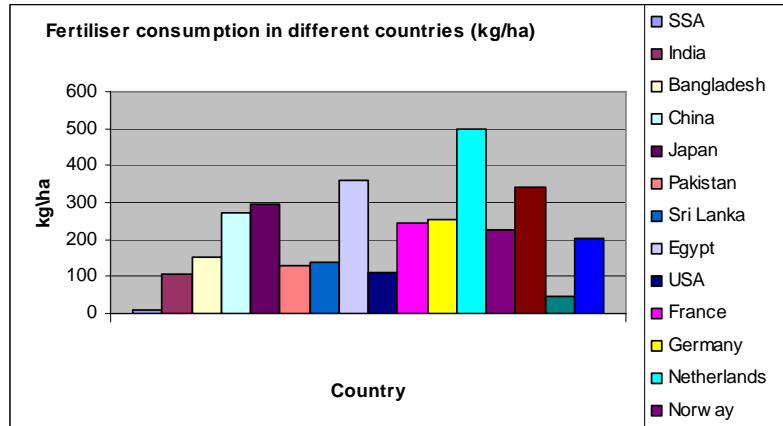
54% of land in India is arable as compared to 33% in Nigeria, 12% in South Africa, 9% in Kenya

Irrigated Land (%age)



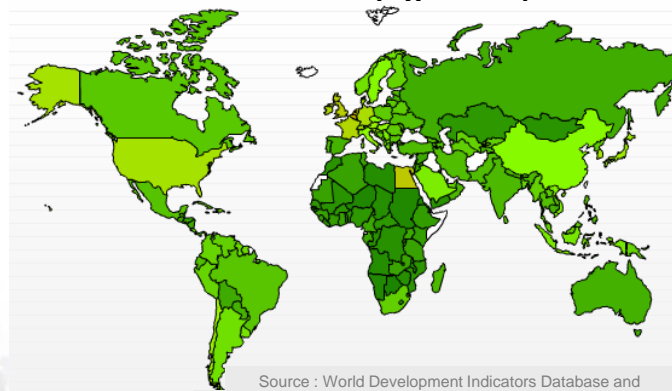
India has 33% irrigated cropland as compared to 9.5% for South Africa, 2% in Kenya, ~ 1% in Nigeria

Fertilizer Consumption (kg/Ha)



- India - 100 kg/Ha
- SA - 65 kg / Ha
- Kenya - 31 kg / Ha
- Nigeria - 5.5 kg / Ha
- Africa average of 21 kg / Ha & SSA average of 8 kg / Ha

Cereal Yield (kg / Ha)

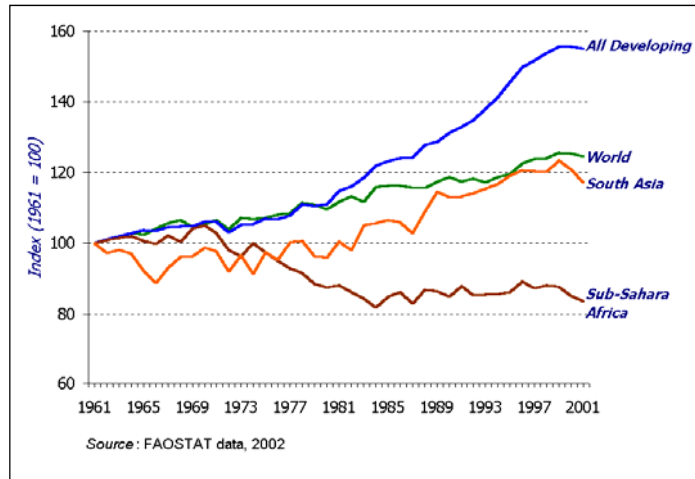


Legend: **Top** 10,400 **Middle** 2,789 **Bottom** 156 (No data)

- India - 2300 kg/Ha
- South Africa - 3300 kg/Ha
- Kenya - 1320 kg / Ha
- Nigeria - 1050 kg / Ha



Per Capita Production



The green revolution in Asia has helped increase its per capita production from 1961 levels whereas it has gone down in Africa

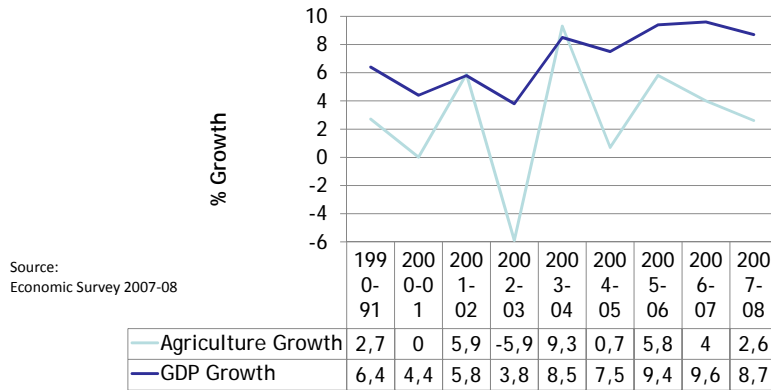
Agriculture in Africa and India

Many Similarities

*Despite the differences,
today Africa and India appear to be on similar
cross-roads*



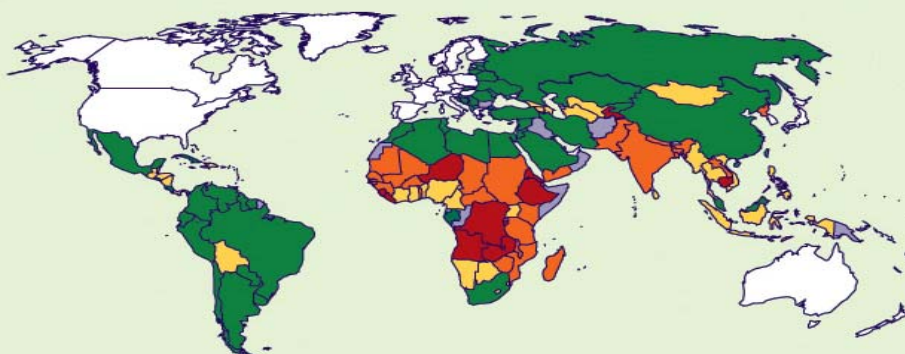
Stagnation in Agriculture



Source:
Economic Survey 2007-08

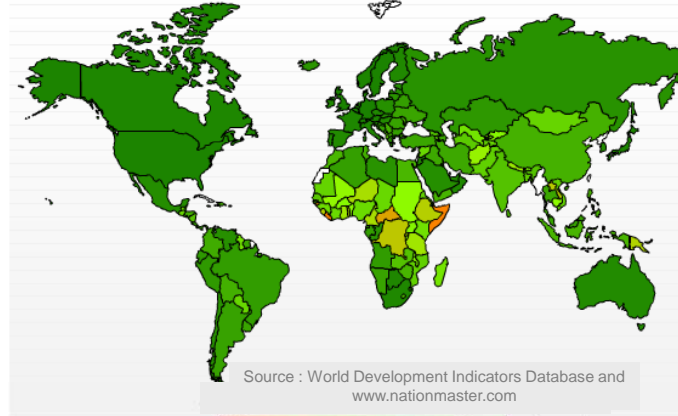
Indian agriculture has been growing at a meager growth rate of 2.7% since 2000. African agriculture also growing at an average of 2 - 2.5%

Global Hunger Index



Sources: FAO 2005, WHO 2006, UNICEF 2005, and author's estimates calculated for 2003.

Agriculture - still key to overall GDP growth



Legend: **Top** **Middle** **Bottom** (No data)

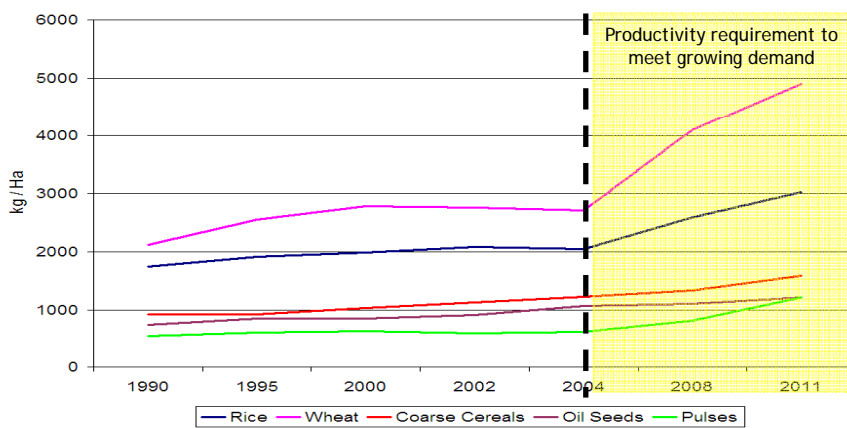
Agriculture value added (in \$ per \$1000 GDP) 636 143 1 (No data)

Value added by Agriculture contributes about 30% to Africa's GDP
 (Kenya - 24% (34%), Nigeria - 23% (56%), South Africa - 2% (11%)
 against 17% (43%) in India

(%) in 1961

Productivity Increase

Critical to feed the growing population



Yield CAGR's ranging from 0.6% in pulses to 1.7% in cereals.
 Wheat & Paddy yield CAGR's at 0.95% and 1.22% respectively

Imbalanced fertilization & need for region specific recommendations

| | NPK Ratio | | NPK (Kg/ha) | |
|----------------|------------|--------------|-------------|---------|
| | 2005-06 | 2006-07 | 2005-06 | 2006-07 |
| Punjab | 17.2:2.9:1 | 25.8:5.0:1.0 | 209 | 210 |
| Haryana | 27.6:5.4:1 | 32.7:8.0:1.0 | 176 | 175 |
| Madhya Pradesh | 8.7:5.8:1 | 8.2:6.4:1.0 | 47 | 60 |
| Uttar Pradesh | 20.8:3.8:1 | 20.5:5.0:1.0 | 141 | 152 |
| Gujarat | 8.1:3.2:1 | 8.8:3.5:1.0 | 116 | 127 |
| Maharashtra | 4.4:2.1:1 | 4.2:2.4:1.0 | 88 | 101 |
| Chhattisgarh | 6.2:2.4:1 | 6.1:2.4:1.0 | 66 | 76 |
| All India | 5.9:2.1:1 | 6.5:2.7:1.0 | 107 | 116 |

Consumption of N,P and K has been determined by either tradition or govt. controlled subsidies. Therefore, need to have region specific recommendations

- Most people engage in Agriculture
 - Like in Africa, India has over 60% population engaged in Agriculture
- Fragmented land holding
 - 78% of marginal & small farmers (holding less than 2 ha)
- Increasing land degradation
 - 57% of land in India is under some form of degradation.
 - Africa, also loses equivalent to \$4b per year due to soil nutrient mining
 - In India, intensive cultivation over the years with little importance given to nutrient replacement. Practically no use of organic and biological nutrient sources
- Dependence on rainfall
- Inadequate infrastructure
 - Huge farm-gate wastage of produce to the tune of 35% in fruits & vegetables and nearly 10% in grains
 - Very little storage or transportation infrastructure
 -
- Government Policy
 - The Fertilizer subsidy & "Minimum Support Prices" affecting input consumption & crops grown.
 - Dated laws like APMC, ECA etc. prevent efficient distribution of inputs and better price discovery for produce
 - Laws prevent easy introduction of new generation products and technologies to the farmer

Similar Farmer problems



- **Poor migration from lab-to-land**
 - Multiple agencies involved in research, but lab results not getting replicated in the farmer field
 - Lack of credible agri-advisory to farmers
- **Availability of quality inputs**
 - Unorganised retail of inputs leading to low control on quality of inputs being supplied
- **Availability of Finance** : Low coverage under formal credit / crop insurance
 - 85% of farmers have no access to institutional credit
 - Ineffective crop insurance products
- **Inefficient output markets**
 - Information arbitrage that currently allows middlemen to exploit the farmers
 - Commodity exchanges are still nascent

Hariyali Kisaan Bazaar





Kisaan Bazaar

Hariyali Kisaan Bazaar

*"Hariyali" means "Greenery" in Hindi
It signifies "Prosperity in Agriculture"
"Kisaan Bazaar" means "Farmer's market"*

The business is designed to unlock the latent opportunity in rural markets facilitating inclusive growth

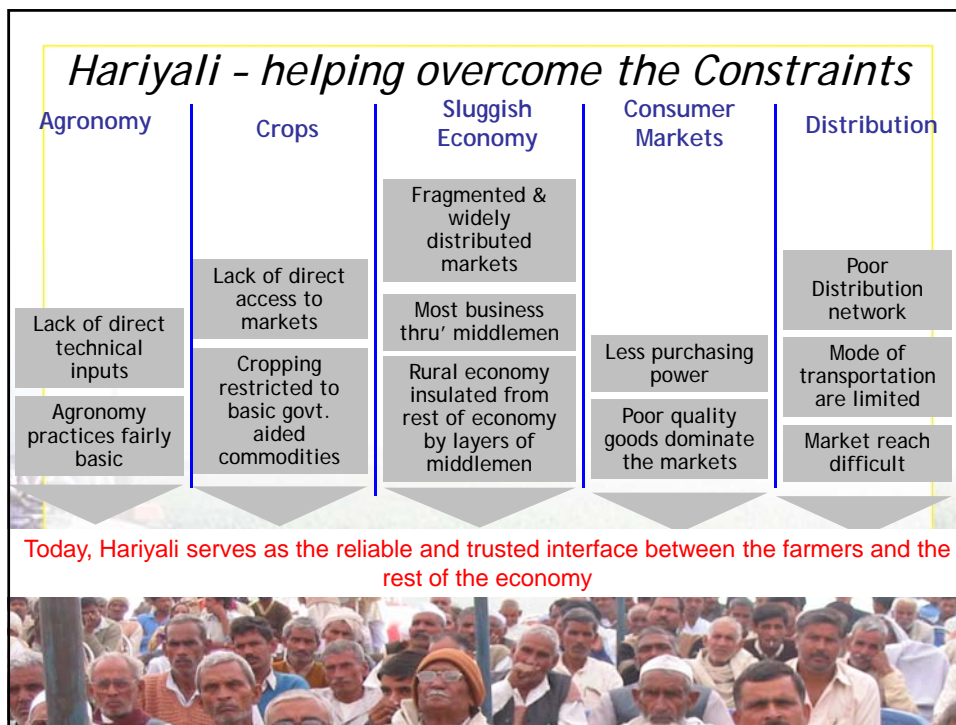


Hariyali Kisaan Bazaar



Set-up as a complete Agri-solution provider in July 2002 to provide the rural customer with choice, trust, dignity and thus create long-term relationships

Providing approachable Agri distribution channel, which caters to multiple products and advisory service as well.



Hariyali - Centers



Hariyali - Stores



Constraint : Agronomy

Primary focus on increasing Income Levels

Qualified agronomists manning the outlets & providing customized technical advisory to farmers 24 X 7. Increasing agricultural incomes can,

- Trigger the rural economy
- Stem the migration to cities



What has worked ?

- Customized solution
- Collaborative approach
- Long term engagement with farmer

Small farmer success stories in Hariyali catchments



Crop diversification

- Mr. C. Peddaraju is a small farmer of village Kamatamigunta, Tadapadikulam (AP) he lives 5 Km away from Hariyali.
- Mr. C. Peddaraju normally grows paddy and fulfills the need of his family. He has never tried any other crop then paddy because he was not having the knowledge of growing. Mr. C. Peddaraju was given the complete end to end support for growing Maize right from crop selection to harvesting.
- With the help of Hariyali support he could achieve maize yield of 40 qnt /acre
- Mr. C. Peddaraju found maize as a very easy and low input cost crop as compared to paddy. And he achieved the income of **Rs.44000 per acre which was Rs. 20000 more then paddy crop.**
- Regional print media has published the success in paper.



Sustainable Agriculture

- Improving the quality of cereals (wheat) along with improving the yield.
- Hariyali as a primary member of ACIAR project is extending the Wheat quality and yield improvement techniques program in north India.
- This will enable the farmers to grow quality and quantity produce (wheat) for better income and human health needs.
- The quality wheat will serve the demand of industry like baking etc.



Increasing the farm income per unit area

Small farmers of 2-3 acre's were demonstrated and encouraged for adopting intercropping of pulses (moong) with cotton. Pulses is harvested in 60-65 days and gave an extra income of Rs. 7500 -8000 per acre without disturbing the cotton



Increasing the farm income through intercropping

- Mr. Keshav Kumar is a small farmers (1.5 acre) of village Takarganj (Faridpur). He grows sugarcane crop.
- Hariyali agronomists team encouraged Mr. Keshav Kumar to grow Okra as a intercrop for better income. Mr. Keshav Kumar adopted the practice as told and he received Rs.5000 as extra income from Okra in addition to sugarcane.
- Mr. Keshav Kumar is very happy with the technique and is now a regular customer of Hariyali



 hariyali
Kisan Bazaar

Increasing the farm income through intercropping

- Mr. Amar Singh is a small farmer of 3 acre from village Dakarganj (Fardpur) he grows sugarcane.
- Hariyali agronomists team advised Mr. Amar Singh to grow Water melon as an intercrop for better income. Mr. Amar Singh adopted the practice as advised and he has harvested the water melon of Rs.6500 as extra income in addition to sugarcane.
- Mr. Keshav Kumar is now very happy with the technique and will continue with such practices



Extending appropriate technology

- Mr. Rameshwar is a small farmer of village Parsadepur near to Salon (UP) he lives 7 Km away from Hariyali.
- Mr. Rameshwar grows paddy and wheat for his livelihood.
- With the help of Hariyali support he has adopted hybrid paddy for the first time.
- Mr. Rameshwar achieved very good yield of 32 qnt / Acre that is 10 qnt /acr extra as compared to local varieties 22qnt/acre.
- Mr. Rameshwar achieved extra income of Rs.7500 per acre just by adopting improved suitable variety by the Hariyali guidance.
- Mr. Rameshwar received the best achiever award from Hariyali and seed company.



- Customized services
 - Mr. Magan bhau is a small farmer of village Salema near to Pachora (MH) he lives 5 Km away from Hariyali.
 - Mr. Magan bhau grows onion for his livelihood.
 - Every year Mr. Magan bhau incurs huge loss due to insect pest and nutrient deficiency in his onion crop.
 - When he visited Hariyali and reported the problem the Hariyali agronomist visited the field and came to know that farmer has very poor knowledge about he problems and was wasting the money on wrong inputs.
 -
 - Mr. Magan bhau was provided customized advisory at his field in result he achieved very good yield and extra income of Rs.6000 per acre as compared to past years.



- Intercropping of High value crop in seasonal crop
 - Mr Gagan Mal is a small farmer of Amroha having 1.5 acre land.
 - He used to cultivate seasonal vegetable crops.
 - During rabi season he grows cauliflower.
 - With Hariyali agronomist advice he agreed to intercrop Garlic with Cauliflower.
 - Mr Gagan Mal got profit from cauliflower worth Rs 12000 per acre, and with garlic intercropping he got an extra profit of Rs 7000 per acre



Constraint : Crops

Creating Market Access

Creating direct linkages with processors , exporters, retailers etc.

High value cropping resulting in a profit of 2750\$ per Ha in comparison to 500\$ per Ha with the traditional crops



Taking concepts of Modern Retailing to Rural Areas



Constraint : Consumer Markets

Providing Urban Amenities in Rural Areas

Making available “Aspirational” but “Value for Money” household products triggering demand in the rural economy

Giving the Customers the right to choose

Giving the farmers respect, dignity and freedom of choice



Constraint : Consumer Markets

Assured quality & quantity

Easy Availability of quality products at “city-like” fair prices does two things,

- Reforms local shopkeepers / trade channels
- Stems the “Market Migration” to cities



Constraint : Infrastructure



Linking Farmers through IT

Providing ATM access, weather forecasts, commodity prices & commodity futures

Creating Local Employment



Constraint : Sluggish Economy

Improving the quality of life



Creating door-step availability of products, services, finance & output procurement

Creating sustainable inclusive growth

Catchment Radius
of 20-25 kms.

Approx. gross income Rs.280
cr. (\$ 60 mn)



About 15-20,000
farming families

CATCHMENT DETAILS

Agricultural Land
30-40,000 Ha

With each center reaching out to 20,000 farming families, the Hariyali model is proving to be an example of commercially sustainable business venture which triggers inclusive growth

Hariyali..... a case study at Harvard

HARVARD BUSINESS SCHOOL

N9-508-012
NOVEMBER 9, 2007

DAVID E. BELL
NITIN SANGHAVI
VIRGINIA FULLER
MARY SHELMAN

Hariyali Kisaan Bazaar:^a A Rural Business Initiative

Full benefits to agriculture from economic reforms introduced in India and globalization of trade can materialize only when the farmer is linked to the consumer and the infrastructure supporting agriculture is upgraded, investment in agriculture is raised, and credit at affordable terms is made available to the farmer.¹

— Kamal Nath, India's Minister of Commerce and Agriculture, 2007

Business head of DSCL Corporation's (DSCL) Hariyali Agri-Retail New Delhi office in April 2007. He had just returned from factors Ajay S. Shriram, Vikram S. Shriram, and Rajiv Sinha (Hariyali), a chain of 75 rural retail outlets spread across (Rs) 150-180 crore^b (approximately \$40 million) in the Hariyali retail concept. Hariyali outlets



Hariyali partnering with key International Agencies

- **CSISA Project** (*Cereal System Initiative for South Asia*)
 - Aiming at increasing cereal crop yield in South Asia
 - Project is funded by Bill & Melinda Gates Foundation and co funded by USAID.
 - Projects associates are IRRI and CIMMYT
 - Hariyali is sole delivery partner in India.
- **IFPRI** (*International Food Policy Research Institute*) - **Study Assessing impact of Hariyali on agriculture prosperity**



Learnings in the context of Africa



Proof of Concept The Malawian Agro-Dealer



- The story of Ms. Dinnah Kapiza at the “Tisaiwale Variety Shop”, in Mponela, 60 km from the Malawian capital, Lilongwe proves that a “Hariyali” model can work in Africa.
- Demo Plots, Farming Tips, Increased yields,
- Planning to expand the retail shop

Ghana Cocoa Farming

- In Malawi, Kenya, and Tanzania, CNFA has demonstrated the success of this model, building a network of rural entrepreneurs (agrodealers) that can,
 - Sell inputs,
 - Provide extension services,
 - Offer access to financing and output markets
- In Ghana, CNFA Inc. to getting together with Wienceo Ghana Ltd. and Cocoa Abarabopa Association to create a similar network

A combination of NGO, association, and commercial enterprise could be the way to implement initially.



Pre-requisites - Environment

- Govts. should create “Enabling Environment”
 - Stable policy environment
 - Encourage balanced fertilization
 - Encourage effective technologies
 - Create environment for credit & insurance delivery
 - Encourage creation of open ,modern market Infrastructure
 - Encourage Commodity Exchanges
- Technology dissemination
 - Encourage identification of appropriate technology.
 - Encourage “Extension Services” / Technology dissemination through private agencies with clear measurable targets.
- Infrastructure
 - Roads
 - Warehouses
 - Food processing Units



Pre-requisites - Business

- Capital
- Long gestation
 - High operating costs
 - Low margin of agri-inputs
 - Manpower costs
 - Low purchasing power of consumers



Critical Factors

- Availability of technically qualified manpower
 - Since Agri-services is key to success of this model, availability of qualified manpower is critical
- High effort business
 - Requires localisation due to regional variations in taste and consumption patterns
 - Low literacy and education levels of consumers
 - Number of government approvals
- High dependency on Front-end
 - Inadequate infrastructure and Wide geographical spread make supply chain and logistics benefit difficult to achieve
- Need for institutional support
 - For providing educated and skilled manpower
 - For providing technical training



Critical Factors

- Volume & Size of business - critical to viability

| | Rural | Urban |
|------------------------------|-------------|--------------|
| Population (in million) | 680 | 320 |
| Markets | 627000 | 3768 |
| Population per market | 1085 | 85000 |

| Population range | No. of villages | No. of retail outlets |
|-----------------------|-----------------|-----------------------|
| More than 2000 | 60000 | 1330000 |
| Between 500 and 2000 | 230000 | 1470000 |
| Less than 500 | 340000 | 500000 |


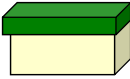

Rural markets will not offer volume per outlet. The skill will lie in creating "formats" with costs commensurate with expected business

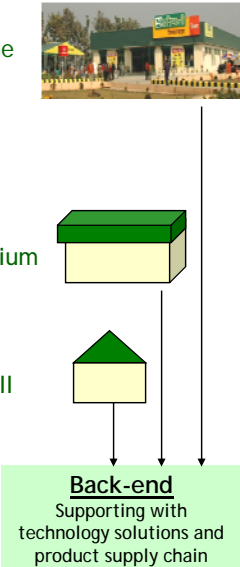
Possible Approach

- Step 1 - Get the public sector & private sector stakeholders together to create the business structure.
- Step 2 - Identify areas where, through agronomic changes, we can deliver change (our ability to deliver change will be the key determinant of success). Should look at,
 - Progressiveness of farmers
 - Infrastructure
 - Land-holdings
 - Market accessibility
 - Finance availability
- Step 3 - Keeping commercial viability as paramount, roll out formats in accordance with revenue potential
- Step 4 - Creating cluster, on hub and spoke model



Example

| | Area Characteristics | Outlet Characteristics |
|---|--|---|
| Large  | <ul style="list-style-type: none"> • Fairly good infrastructure • Progressive Farmer, • Processing infrastructure • High farming potential • Access to market information | <ul style="list-style-type: none"> • High investment • Advisory, Soil testing, Financing, Banking, Warehousing, Departmental Store • Output buyback • Direct link with processors |
| Medium  | <ul style="list-style-type: none"> • Area with basic roads • Farmer, willing to change • High farming potential | <ul style="list-style-type: none"> • Medium investment • Advisory, Soil testing, Financing, Wider range of Products • Output buyback |
| Small  | <ul style="list-style-type: none"> • Poor infrastructure • Farmer, willing to change • High farming potential | <ul style="list-style-type: none"> • Low investment • Advisory, Financing & Basic Products • Possibly, franchised |



What can the model provide to African farmer ?

- Availability of quality product at reasonable price
- Nearby market
- Understanding local need
- Customized product
- Awareness
- Contact farming
- Reliable seed production
- Storage facility and technology
- On farm assistance to small farmer
- Reducing transportation cost to farmer
- Physical access to market and market information
- Better access to finance (collaborating with financial institutions)
- Soil testing facility
- A link for international aid reaching target customer



Summary

- Yield & Productivity Improvement is essential to creating inclusive growth in Agriculture dominant economies.
- Public & Private sector can collaborate by creating “Enabling Environment” & “Efficient Delivery”, respectively.
- Private sector should create multiple revenue streams based on transparent & effective participation in input as well as output value chain.
- Only commercially sustainable business models will be able to create a long term impact on the rural economy.
- Ensuring availability of Quality products in time is key.



*Hariyali - committed to improving
lives in Rural India*

