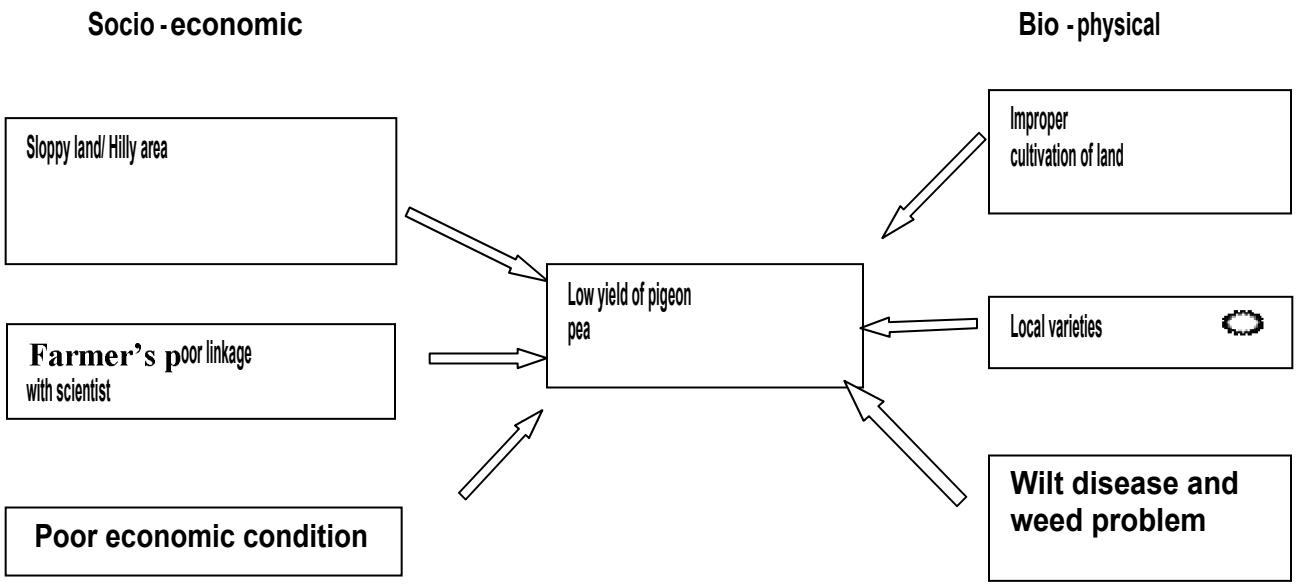
C. On Farm Trials (OFTs):

OFT - 1 : Varietal evaluation of chickpea

In dang district, productivity of chickpea is low because of improper cultivation of land and use of local varieties by farmers. Due to this severe wilt problem in local varieties which ultimately affect the growth and yield of chickpea. Chickpea required wilt resistance and high yielding variety for its better growth and development. Improper cultivation with local varieties reduce the plant population and ultimately it's reduce the crop yield.

Problem: See the problem cause diagramme



Intervening point

1.	**OFT Title**	Varietal evaluation of chickpea
2.	**Prioritized problem**	Use of local varieties
3.	**Technology Assessed**	T_1: Farmer variety (Local varieties) T_2: GJG 6 (2014 - 15)
4.	**Variety**	As per treatment

5.	Seed rate	60 kg/ ha
6.	Season	*Rabi* – 2023-24 to 2025-26
7.	No. of trials	10
8.	Total area of OFT	3.0 ha
9.	Observation to be studied	Yield (kg/ha)
10.	Source of Technology	Pulse Research Station, JAU, Junagadh (2014-15)
11.	Name of critical input	Seed, Novel organic liquid nutrients, *Rhizobium* and PSB
12.	Appro. Cost per OFT	Rs. 1500/-

Performance of the technology with performance indicators:

Result: 1st year (2023-24)

Treatment	Technology Assessed	Yield (q/ha)	BCR
T_1	Farmer variety (Local Varieties)	10.71	2.68
T_2	GJG 6	12.81	3.71

Result : 2nd year (2024-25)

Treatment	Technology Assessed	Yield (q/ha)	BCR
T_1	Farmer variety (Local Varieties)	9.91	3.30
T_2	GJG 6	13.43	3.78

Result : 3rd year (2025-26) Result is awaited.

OFT -2 : Varietal assessment of Indian bean in the Dangs district

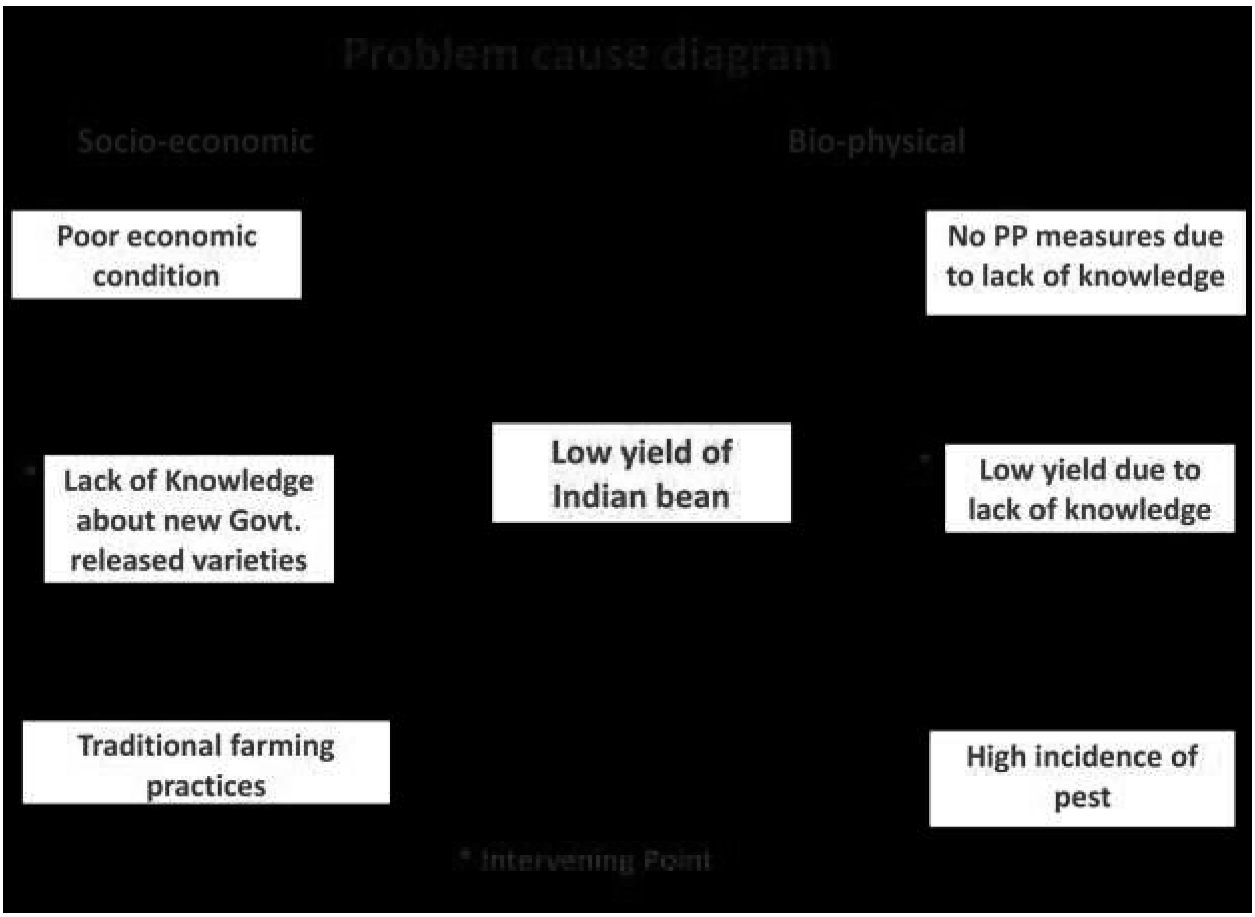
Background:

In the Dangs district, mostly Desi (Katargam) and other indeterminate variety of Indian bean is grown with low yield potential due to lack of knowledge about proper scientific cultivation and lack of knowledge about new released variety of State Agricultural Universities and Government Institutions.

GNIB 21 (>30.00 Q/ha) performed well under South Gujarat regions. This variety is Extra early, determinate,erect and dwarf plant type suitable as intercrop in Sugarcane, pigeon pea *etc.*

GNIB 22 (>40.00 Q/ha) performed well under South Gujarat regions. The variety is early, determinate and erect type with good market & cooking quality and yield, hence it is highly acceptable to the farmers and consumers. Its green pod fetches similar price to that of *surti papadi*.

OFT has been framed for comparing farmer adopted Desi (Katargam) variety to "GNIB-21" and "GNIB 22" variety.



1.	**OFT Title**	Varietal assessment of Indian bean in the Dang District
2.	**Prioritized problem**	Low yield of Farmers variety (due to lack of knowledge about proper scientific cultivation method and lack of knowledge about new released variety of State Agricultural Universities and Government Institutions.)
3.	Technology **Assessed**	T_1: Farmers practices (Katargam) T_2: GNIB 21 (2014) T_3: GNIB 22 (2017)
4.	**Variety**	Gujarat Navsari Indian Bean 21 Gujarat Navsari Indian Bean 22
5.	**Seed rate**	25-30 kg/ha
6.	Season	*Rabi* – 2023-24
7.	**No. of trials**	06 (0.1 ha/treatment and 0.3 ha/ farmer)
8.	**Total area of OFT**	1.8 ha
9.	Observation to be **studied**	Primary parameters : Yield of pods (kg/ha)
10.	Source of **Technology**	Navsari Agricultural University, Navsari (2014)
11.	Name of critical **input**	Seeds, Novel organic liquid nutrients, PSB, *Rhizobium* and KMB (Novel & other Bio-fertilizer given for adoption of organic farming)

Performance of the technology with performance indicators:

Result: 1st year (2023-24)

Treatment	Technology Assessed	Yield (Q/ha)	BCR
T_1	Farmers practices (*Katargam*)	28.16	2.01
T_2	GNIB 21	31.66	2.31
T_3	GNIB 22	33.33	2.42

Result : 2nd year (2024-25)

Treatment	Technology Assessed	Yield (Q/ha)	BCR
T_1	Farmers practices (Katargam)	28.25	1.95
T_2	GNIB 21 (2014)	31.75	2.24
T_3	GNIB 22 (2017)	33.25	2.34

Result : 3rd year (2025-26) Result is awaited.

OFT 3: Varietal assessment of Brinjal in the Dangs district

Background:

In the Dangs district, mostly Desi (Palanpuri) and other hybrid variety of Brinjal is grown with low yield potential due to lack of knowledge about proper scientific cultivation and lack of knowledge about new released variety of State Agricultural Universities and Government Institutions.

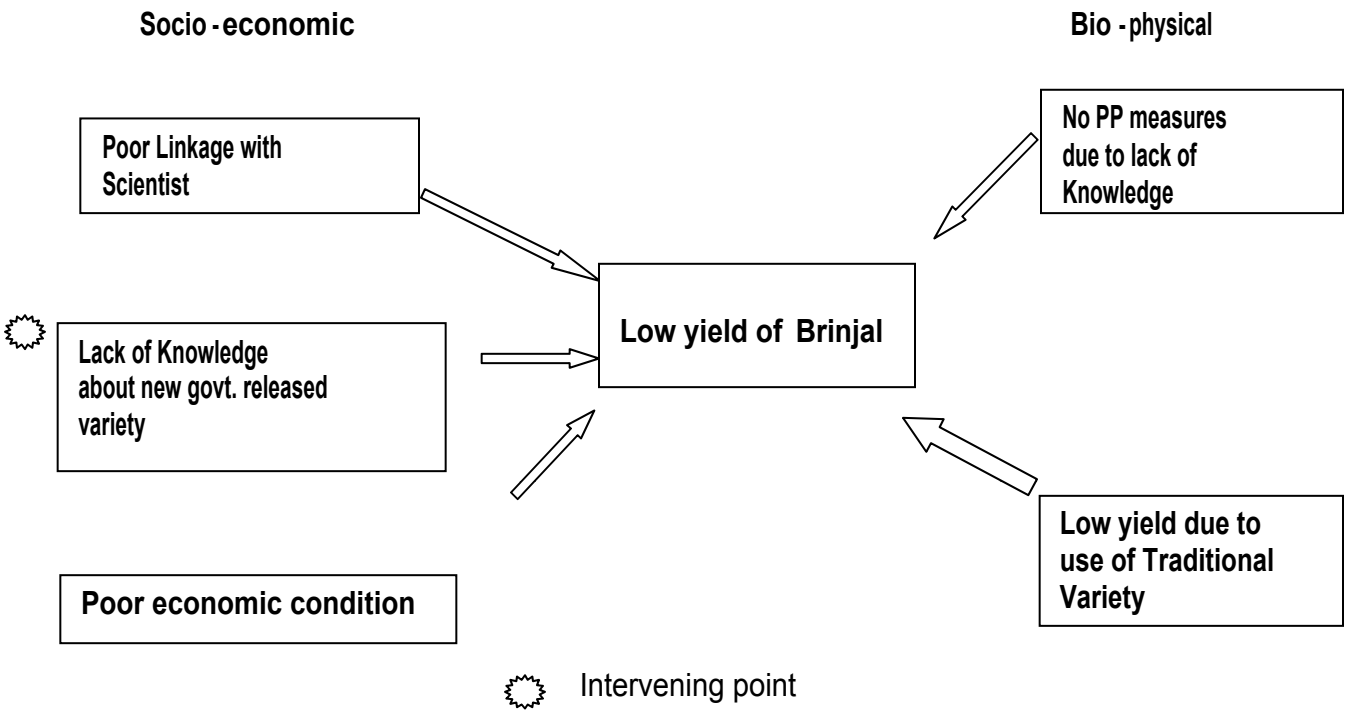
Gujarat Navsari Round Brinjal1 (>380 Q/ha) performed well under South Gujarat regions. GNRB-1 is a high yielding, anthocyanin rich varietywhich is suitable for cultivation in Kharif and Rabi Season.Most importantfeature of proposed variety is, it has lesser incidence oflittle leaf disease, has less number of whitefly and jassid population per leaf compare to standard checks

OFT has been framed for comparing farmer adopted Desi (Palanpuri) variety Gujarat Navsari Round Brinjal 1 variety.

1.	**OFT Title**	Varietal assessment of Brijal in the Dang District
2.	**Prioritized problem**	Low yield of Farmers variety (due to lack of knowledge about proper scientific cultivation method and lack of knowledge about new released variety of State Agricultural Universities and Government Institutions.)
3.	**Technology Assessed**	T_1: Farmers practices (Palanpuri) (2007) T_2: GNRB 1 (2020)
4.	**Variety**	Gujarat Navsari Round Brinjal 1 (2020)
5..	**Seedling**	200 seedling (0.01 ha)
6.	**Spacing**	90 X 60 cm
6.	Season	*Rabi* – 2024-25
7.	**No. of trials**	06 (0.01 ha per treatment and 0.03 ha per farmer)
8.	**Total area of OFT**	0.12 ha
9.	Observation to be **studied**	Fruit yield (Q/ha)

10.	Source of **Technology**	Navsari Agricultural University, Navsari (2020)
11.	Name of critical **input**	Seedlings, Novel organic liquid fertilizer, Azotobacter, PSB and KMB (Novel & other Bio-fertilizer given for adoption of organic farming)
12.	**Appro. Cost of OFT**	Rs. 7000/-

Problem: See the problem cause diagramme



- **1st year (2024-25)**

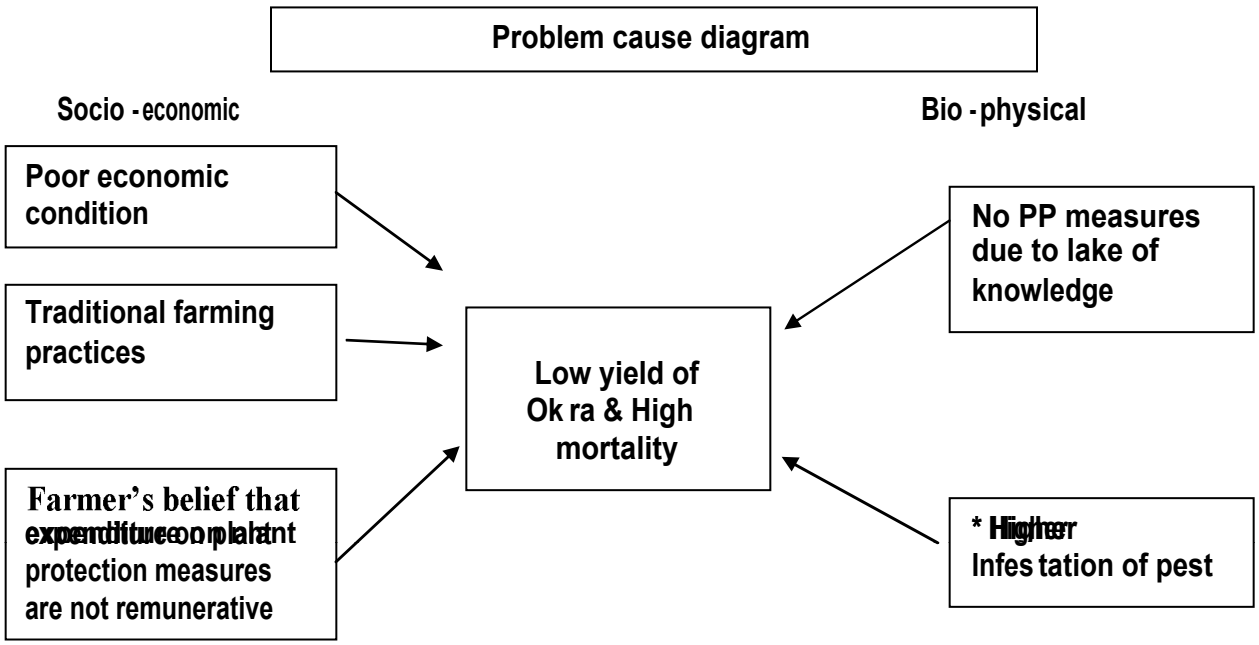
Treatment	Technology Assessed	Yield (Q/ha)	BCR
T_1	Farmers practices (Palanpuri)	180.83	1.98
T_2	GNRB 1	195.16	2.16

- **2nd year (2025-26) Result is awaited.**

OFT 4: Management of Fruit & Shoot borer of Okra

Background :

Okra (*Abelmoschus esculentus*) is a vegetable crop widely grown during *Kharif* / *Rabi* season in dang district. Day by day increasing the area of Okra in this district gives comaparatively lower yield. Large number of hybrid available in the market but cost of seeds as well as higher incidence of pest affect yield. Assessment of such public variety in Dang district for best performance for growth, yield and quality character for avoid these problem OFT is taken.



***Intervening point**

Treatments:	T_1: Farmers practice T_2: Installation of Pheromone trap T_3 : Spray Azadirachtin (Neem oil based) 1500 ppm
Season	*Rabi* – 2021-22 to 2024-25
No. of villages	01
No. of farmers	06
Area/treatment/farmer	0.6 ha/ farmer
Total area of OFT	3.6 ha
Observation to be recorded	Yield of Okra (kg/ha)
Estimated cost of inputs per trial/per farmer	Rs. 4000 (Approx.)

Result:

Sr. No.	Year	No of trials	Area (ha)	Yield(Q/ha)		
				T_1: Farmers practice	T_2: Installation of Pheromone trap	T_3: Spray Azadirachtin (Neem oil based) 1500 ppm
1.	2021-22	06	3.6	81.16	99.5	107.0
2.	2022-23	**Input not given due to the lack of grant.**				
3.	2023-24	06	3.6	131.0	140.3	143.6
4.	2024-25	06	3.6	130.0	143.0	145.0

Conclusion:

On the basis of study carried out for three consecutive years it is summarized that **T_3: Spray Azadirachtin (Neem oil based) 1500** ppm recorded the highest yield in comparison to **T_2: Installation of Pheromone trap & T_1: Farmers practice** so it is concluded that **T_3: Spray Azadirachtin (Neem oil based) 1500 ppm** proved the best pesticide for management of fruit & shoot borer in okra in tribal area of dang district.

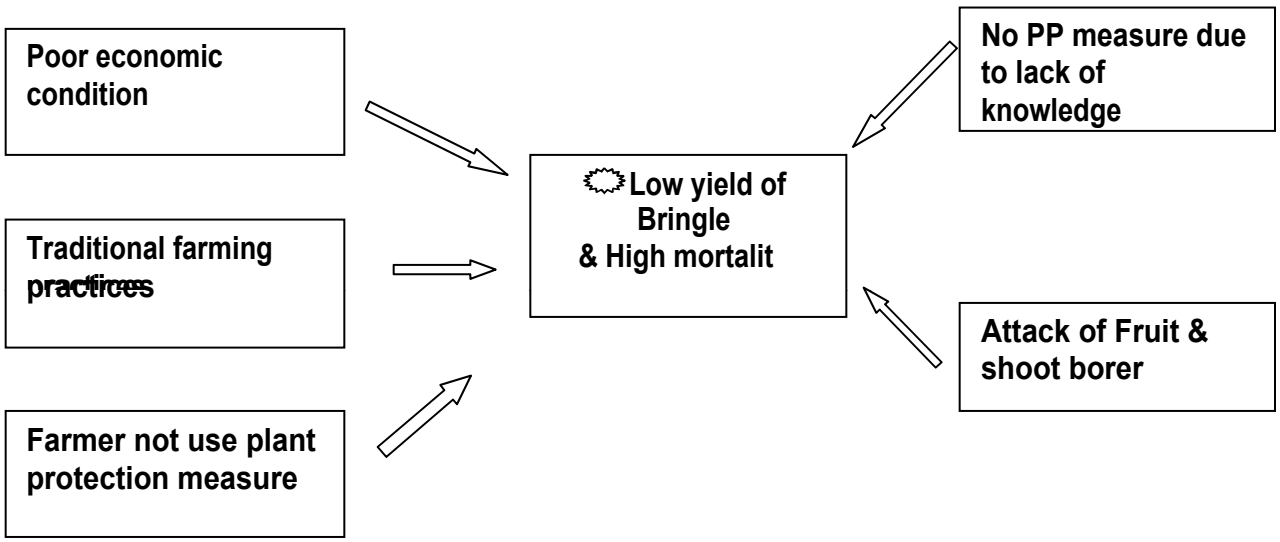
OFT-5: Assessment of pheromone trap for the management of fruit & shoot borer in Brinjal

Background:

Bringal is one of the most common vegetables grown in dang district. Immature fruits are used in curries and a variety of dishes are prepared out of brinjal fruits are moderate source of vitamins and minerals like phosphorus, calcium and iron and nutrition value. Bringal is infected by fruit & shoot borer. Occasional out brack of this disease causing losses to farmer.

Problem : See the problem cause diagramme

Socio economic **Bio physical**



Intervening point

1.	**OFT Title**	Assessment of pheromone traps technology for the management of Fruit & shoot borer in Brinjal.
2.	**Prioritized problem**	Low yield of brin jal.
3.	**Technology Assessed**	T_1 : Farmers Practices T_2 : Installation of pheromone traps @ 40 traps/ha (AAU,Anand) T_3 : Remove the infected shoot and fruit + Installed pheromone traps @ 12/ha (TNAU,TN)
4.	Variety	-
5.	Season	*Rabi* – 2023 to *Rabi* - 2024
6.	No. of village	01
7.	No. of farmer	06
8.	**Area/ treatment/farmer**	0.2 ha/treatment & 0.6 ha/farmer
9.	Total area of OFT	3.6 ha
10.	**Observation to be recorded**	Yield of brinjal (kg/ha)
11.	**Source of Technology**	AAU, Anand & TNAU,Tamil Nadu
12.	**Name of critical input**	Pheromone trap
13.	**Estimated cost of input per trial/per farmer**	Rs. 4000

Result:

Sr. No.	Year	No of trials	Area (ha)	Yield(Q/ha)		
				T_1: Farmers practice	T_2 : Installation of pheromone traps @ 40 traps/ha (AAU,Anand)	T_3 : Remove the infected shoot and fruit + Installed pheromone traps @ 12/ha (TNAU,TN)
1.	2023 - 24	06	3.6	157.1	173.3	169.5
2.	2024 - 25	06	3.6	157.16	170.83	172.33
3.	2025 - 26	Ongoing				

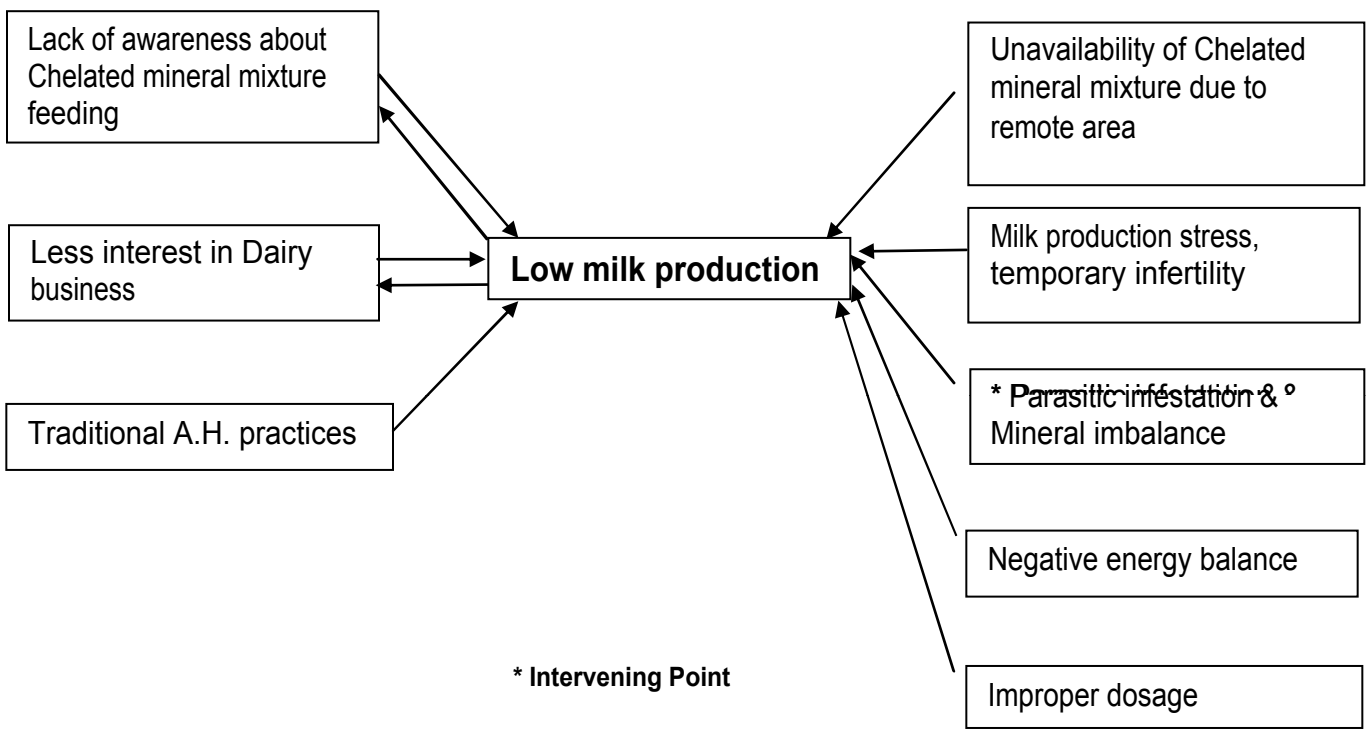
OFT 6: Use of Chelated minerals in the diet of crossbred HF cows

Background:

Parasitic load and mineral imbalance are known to directly affect the milk production to cattle. The dang district is a hilly area with heavy rainfall. Animal lining in such area became prone to parasitic infection due to ingestion of infected grasses aro und stagnant water while grazing. A few years ago, people were using local breeds & traditional husbandry practices, but now a day they are rearing crossbred cows. These valuable animals are highly productive but due to particular geographical location suc h animals become infected with parasites which directly affect the milk production.

Moreover, in spite of high rain, there is water scrcity during summer season due to particular geographical condition. So, green fodder is not available during summer, hen ce these animals undergo mineral imbalance & improper feeding. The socio - economic status of frames is not very good so, they could not feed their animals with mineral supplemen undergo negative energy balance due to malnutrition & high mil k yield whatever the green grass these animals are grazing is surrounded by stagnant water & hence become infected by parasites. So, to overcome these problems of parasitic infestation & mineral imbalance we have identified following problems in proposed o n farm testing programme.

Problem cause diagram



1.	**OFT Title**	Use of Chelated minerals in the diet of crossbred HF cows
2.	**Prioritized problem**	Low milk production due to mineral imbalance & parasitic infestation. Negative energy balance. Milk production stress.
3.	**Technology Assessed**	T_1- Farmer's practice – feeding of locally available feeds and fodders T_2- T_1 + Chelated minerals @ 30 gm/cow/day for 120 days T_3 - T_1 + Chelated minerals @ 30 gm/cow/day for 120 days + Bolus Fenbendazol @ 1 mg/ 5-7.5 kg body weight
4.	**Variety**	Chelated minerals
5.	**Season**	2023
6.	**No. of village**	10
7.	**No. of Animals**	30
8.	**Observation to be recorded**	Yield Milk (Lit/day)
9.	**Source of Technology**	NDRI, Karnal
10.	**Name of critical input**	Mineral Mixture
11.	**Estimated cost of input per trial/per farmer**	18 000/ -

Parameters to be evaluated/ recorded:

Result: 1st year

Treatment	Technology Assessed	Yield (Lit/day)	BCR
T_1	Farmer's practice – feeding of locally available feeds and fodders	6.1	2.1
T_2	T_1 + Chelated minerals @ 30 gm/cow/day for 120 days	7.0	2.3
T_3	T_1 + T_2 + Bol. Fenbendazol @ 5-7.5 / kg body weight	7.7	2.5

Result: 2nd year

Treatment	Technology Assessed	Yield (Lit/day)	BCR
T_1	Farmer's practice – feeding of locally available feeds and fodders	6.0	2.10
T_2	T_1 + Chelated minerals @ 30 gm/cow/day for 120 days	7.3	2.40
T_3	T_1 + T_2 + Bol. Fenbendazol @ 5-7.5 / kg body weight	7.8	2.55

Result: 3 rd year Result is awaited.

OFT 7 : Effect of Fresh Azolla as a Feed Supplementation on Milk Yie
Percentage in Dairy Cattle

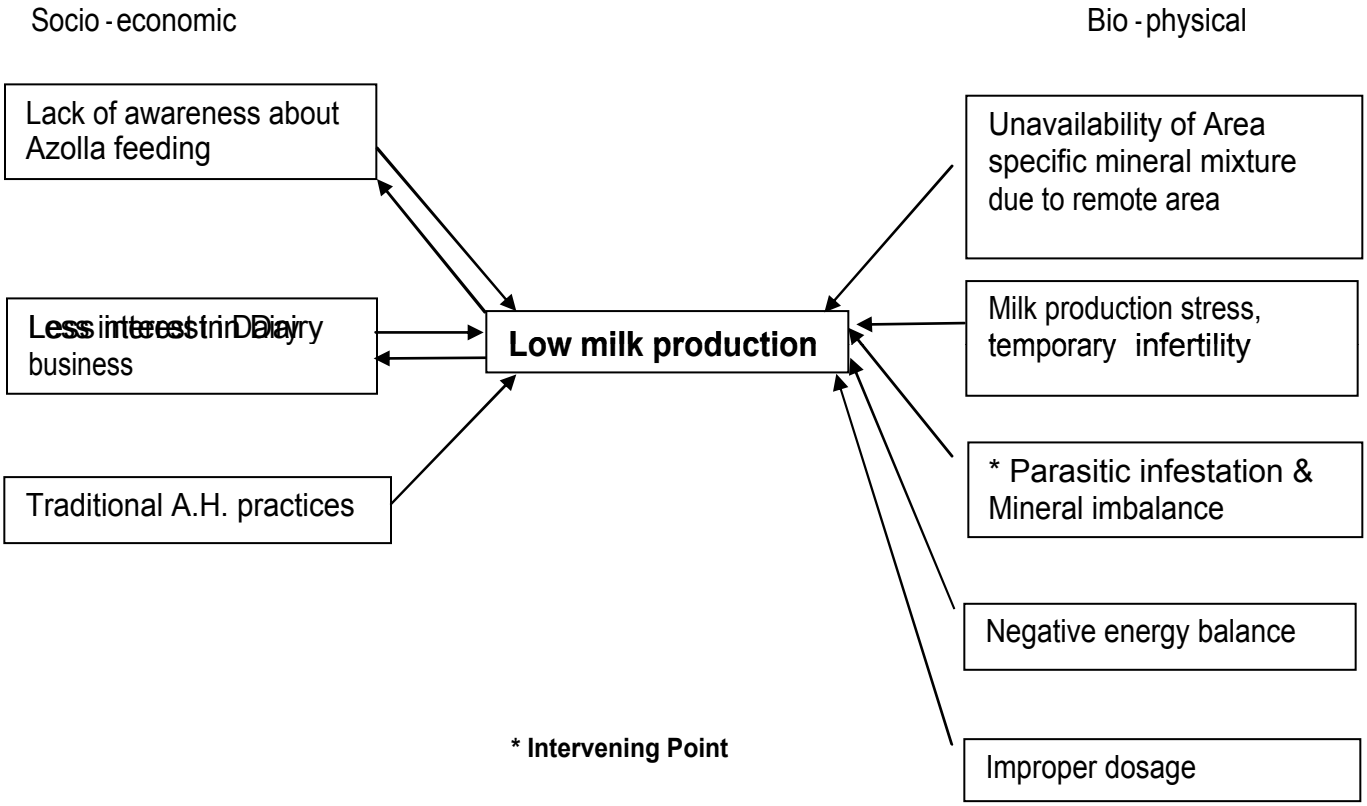
Background:

India is the largest producer of milk in the world and livestock production is the main component of Indian economy. It plays a major role in providing nutritional and livestock security for millions of rural households in India. Livestock productions suff er acute shortage of feed and fodder and supplementation of readymade commercial feed result in increase in cost of production.

The search for alternative to green fodder led to a wonderful plant Azolla, which holds the promise of providing a sustainable feed for livestock. Azolla is a floating fern and belongs to the family of Azollaceae. The common species of Azolla in India is *Azolla pinnata*.

Parasitic load and mineral imbalance are known to directly affect the milk production to cattle. The d ang dist rict is a hilly area with heavy rainfall. A few years ago, people were using local breeds & traditional husbandry practices, but now a days they are rearing crossbred cows. These valuable animals are highly productive but due to particular geograp hical location such animals become infected with parasites which directly affects the milk production. Moreover, in spite of high rain, there is water sc a rcity during summer season due to particular geographical condition. So, green fodder is not available during summer, hence these animals undergo mineral imbalance & improper feeding. Such animals undergo negative energy bal malnutrition & high milk yield . So, to overcome these problems of parasitic infestation & mineral imbalance we have identi fied following problems in propose d on farm testing .

Problem cause diagram



1.	**OFT Title**	Effect of Fresh Azolla as a Feed Supplementation on Milk Yield and Fat Percentage in Dairy Cattle
2.	**Prioritized problem**	Low milk production due to malnutrition & parasitic infestation. Negative energy balance. Milk production stress.
3.	**Technology Assessed**	T_1 = Farmer's practice – feeding of locally available feeds and fodders T_2 = T_1 + 1.5kg fresh Azolla/day/cattle as nutrient supplement for 90 days
4.	**Variety**	Fresh Azolla
5.	**Season**	2024
6.	**No. of village**	05
7.	**No. of Animal**	05
8.	**Observation to be recorded**	Yield Milk (Lit/day)

9.	**Source of Technology**	Bhutia *et al.* (2020)
10.	**Name of critical input**	Fresh Azolla
11.	**Estimated cost of input per trial/per farmer**	Rs. 25000/-

Parameters to be evaluated/ recorded: The effect of fresh Azolla on milk yield and fat % in adopted village of The Dangs District.

Result: 1st **year**

Treatment	Technology Assessed	Yield (Lit/day)	BCR
T_1	Farmer's practice – feeding of locally available feeds and fodders	7.5	2.62
T_2	T_1 + 1.5kg fresh Azolla/day/cattle as nutrient supplement for 90 days	8.3	3.26

Result: 2nd year Result is awaited.