

# Farmer Relief Fund - India

## Executive Summary

With an initial investment, Farmer Relief Fund–India (FRFI) can lead distressed Indian farmers out of the cycle of poverty and debt that plagues them and deliver a profitable return to investors. The capital will be used to (1) buy a controlling interest in the land of financially distressed farmers, (2) pay them to operate the land, and (3) invest in better farming processes and equipment. By producing higher margin crops and higher yields, the project will generate a 20% IRR in five years and up to a 48% IRR in ten years.

## Problem Statement

Since the 1990s, an alarming incidence of suicide among India’s farmers has been attributed to poverty, crippling crop failures, and debt. While India’s economy is growing, small-plot farmers are very unproductive because they lack access to capital to invest in better farming processes (e.g. irrigation) and equipment. They live from crop cycle to crop cycle at the whim of the monsoons and often the only option for continuing to operate is borrowing at extremely high rates.

## Solutions

By purchasing a controlling interest in land owned by distressed farmers and paying them to operate it, FRFI provides destitute, debt-ridden farmers with no other option a way to get out of debt while retaining a claim to their land. Our target farmer owns 2 to 4 acres. Farmers with more sell their land at 2-to-4 acre increments when they are not able to make their debt payments. Thus, farmers with only 2 to 4 acres must sell their property to pay their debt. If farmers are not willing to sell the land to FRFI, a farming cooperative can be developed with the farmland owners and FRFI investors as members. A managing committee would then be developed to oversee the cooperative.

Over the last decade, the switch to heavy pesticides and genetically modified crops caused large-scale farming failure. A 2005 study showed Farmer Field Schools (FFS) in India improved crop yields by 20% and net returns by 44% without using costly pesticides and seeds. FFS taught farmers alternative farming practices, such as planting border crops to combat infestation, and the farmers then passed on the techniques to other farmers.

Debt loads prevent farmers from investing in cost-effective irrigation systems. Jain Irrigation Systems Ltd. sells systems in India that cost \$300-\$400 per acre and offer up to a 70% reduction in water usage (vs. flood irrigation), up to a 230% increase in crop yield, and up to a 30% increase in fertilizer efficiency.

Most farms focus on traditional crops (e.g. soybean, cotton, wheat and gram pulses), which have yields heavily dependent on weather fluctuations. Shade Net/Poly Net farming along with irrigation reduce the risk of weather changes and allows farmers to harvest non-traditional produce such as cucumber, capsicum and roses. As compared to traditional crops, the cycle time is shorter, there is stronger export demand, no government price regulations exist, and yield and revenue potential is significantly higher.

| Current Crops |              | Shade Net Crops |                  |
|---------------|--------------|-----------------|------------------|
| Crop          | Annual Yield | Crop            | Annualized Yield |
| Sugar         |              | Flowers         | \$57,160         |
| Cane          | \$ 1,276     | Capsicum        | \$3,543          |
| Rice          | \$ 510       | Cucumber        | \$1,263          |
| Wheat         | \$ 347       |                 |                  |
| Cotton        | \$ 318       |                 |                  |
| Soy           | \$ 246       |                 |                  |

## Analysis

By introducing training, technology, shade nets and irrigation, FRFI farms will generate higher yields at a higher quality, increasing dollar yield per acre. We are focusing on the areas of Nagpur (hardest hit by the BT cotton incidents and ideal for land speculation due to the rapid growth) and Wardha (53% less expensive at market real estate prices). Using current real estate prices, the average cost per acre of farmland in Nagpur is \$22,300

[http://eands.dacnet.nic.in/latest\\_2010.htm](http://eands.dacnet.nic.in/latest_2010.htm)

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and \$10,500 in Wardha (Realestateindia.com).

Based on the average shade net crop yields, the operating revenue per year will be \$24,000. Factoring in the initial expense of the land, irrigation, and shade nets of about \$48,000, it will take 2.24 years to return the initial investment. Over a 5-year period the project will earn an IRR of 20%. Over the entire project life it may earn an IRR as high as 48% depending on the terminal value. These per acre figures can be scaled to a larger development.

| Year                                    | 0                 | 1         | 2         | 3           | 4           | 5         | 6           | 7           | 8                  | 9         | 10          |
|---|-------------------|-----------|-----------|-------------|-------------|-----------|-------------|-------------|--------------------|-----------|-------------|
| <b>Per Acre</b>                         |                   |           |           |             |             |           |             |             |                    |           |             |
| Revenue                                 |                   | \$ 20,655 | \$ 21,895 | \$ 22,551   | \$ 23,228   | \$ 23,925 | \$ 24,643   | \$ 25,382   | \$ 26,143          | \$ 26,928 | \$ 27,735   |
| Expenses                                |                   |           |           |             |             |           |             |             |                    |           |             |
| Wages                                   |                   | \$ 100    | \$ 100    | \$ 100      | \$ 100      | \$ 100    | \$ 100      | \$ 100      | \$ 100             | \$ 100    | \$ 100      |
| Production Costs                        |                   | \$ 200    | \$ 200    | \$ 200      | \$ 200      | \$ 200    | \$ 200      | \$ 200      | \$ 200             | \$ 200    | \$ 200      |
|   |                   | \$ 300    | \$ 300    | \$ 300      | \$ 300      | \$ 300    | \$ 300      | \$ 300      | \$ 300             | \$ 300    | \$ 300      |
| Operating Profit                        |                   | \$ 20,355 | \$ 21,595 | \$ 22,251   | \$ 22,928   | \$ 23,625 | \$ 24,343   | \$ 25,082   | \$ 25,843          | \$ 26,628 | \$ 27,435   |
| <b>Capital Expenses</b>                 |                   |           |           |             |             |           |             |             |                    |           |             |
| Land Expenses                           | \$ (10,500)       |           |           |             |             |           |             |             |                    |           |             |
| Shade Nets                              | \$ (37,000)       |           |           | \$ (37,000) |             |           | \$ (37,000) |             |                    |           | \$ (37,000) |
| Irrigation                              | \$ (333)          |           |           |             |             |           |             |             |                    |           |             |
| Terminal Value                          |                   |           |           |             |             |           |             |             |                    |           | \$ 685,887  |
| <b>Total Cash Flow</b>                  | \$ (47,833)       | \$ 20,355 | \$ 21,595 | \$ 22,251   | \$ (14,072) | \$ 23,625 | \$ 24,343   | \$ (11,918) | \$ 25,843          | \$ 26,628 | \$ 676,323  |
| <b>Payback period</b>                   | <b>2.24 Years</b> |           |           |             |             |           |             |             |                    |           |             |
|   |                   |           |           |             |             |           |             |             | <b>IRR</b>         |           |             |
| <b>Assumptions</b>                      |                   |           |           |             |             |           |             |             | <b>Time period</b> |           |             |
| Cost savings will equal inflation       |                   |           |           |             |             |           |             |             | <b>5 Years</b>     |           | <b>20%</b>  |
| Yields will increase by 6% after year 1 |                   |           |           |             |             |           |             |             | <b>10 Years</b>    |           | <b>48%</b>  |

Using these per acre numbers, with an initial investment of \$5 million, you could purchase, irrigate and shade 100 acres. This is assuming no economies of scale in the irrigation or shade net purchases. At the end of the 5-year period, the project would generate total cash flows of \$7.3 million, which is a geometric average of 8% per year. This number will only become larger once scale cost savings are added and our expertise is leveraged to improve yields.

Over time we may want to divest some real estate holdings. The original farmer/land owner will have first claim to the land; a lease-to-own structure or future purchase at below market cost agreement can be developed. If the farmer is not able to purchase the land, financing can be provided through our fund at a discounted rate. If selling the land back to farmers is not an option, the land will be developed or sold to the public at the market rate. If the land is sold to the public, a percentage of the profits will be used for community development projects.

## Risks

The key risks associated with our project include political risk (protectionist legislation) and exchange-rate risk. Forming partnerships with domestic organizations and investors can mitigate political risk. As a worst case, we could become an equity investor in an organized co-op to avoid protectionist legislation. As for exchange-rate risk, there are multiple currency derivatives to mitigate this. A third potential risk is reluctance of farmers to sell their land; multiple contingencies have been described above to address this risk.

## Conclusion

The plight of India's small-plot farmers has no end in sight. Despite the government's efforts to help, the cycle of debt, poverty and farmer suicides continues. Farmer Relief Fund-India offers distressed farmers a way out of this vicious cycle and investors a profitable return simply by introducing much needed capital to fund proven agricultural methods.