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# Fuzzy Cognitive Mapping Analysis: Farmer 3

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Farmer 3

**Introduction**

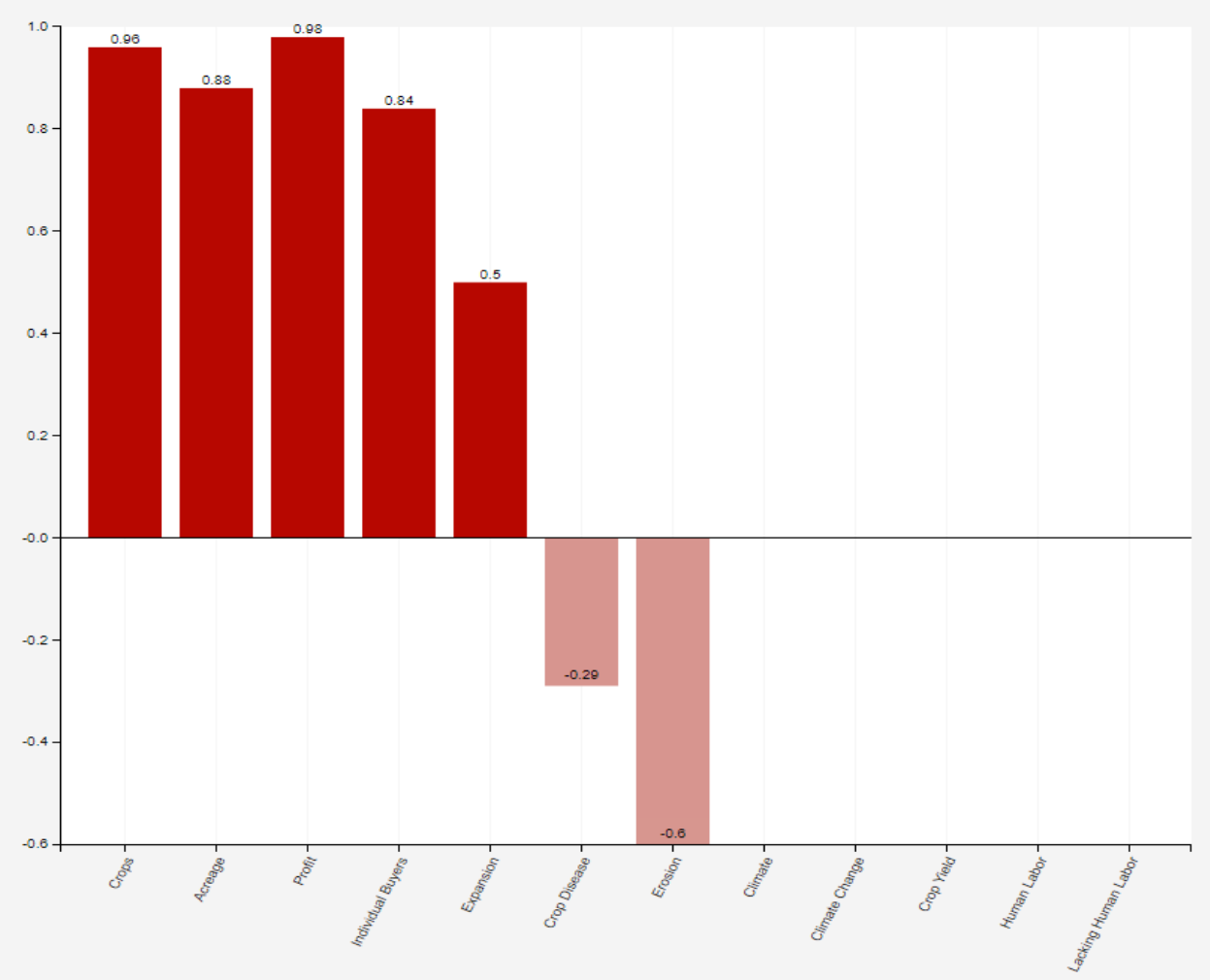
This analysis for Farmer 3 is part of a larger research project for the Mississippi Delta Council for Farm Worker Opportunities, Inc. Farmer 3 is in an optimal position to expand their production by refining the types of crops planted and increasing the amount of acreage farmed. The following suggestions are alternate expansion avenues:

- Increase sustainability practices.
    - i.e. controlled burns, crop rotation, irrigation, land rests
- Hire one additional employee.
    - Full-time or part-time; each modeled provided

Author interviewed Farmer 3 to gather the variables analyzed below and used Fuzzy Cognitive Mapping (FCM) to determine each variables' relationships. Each model listed in this report is based on the farm's current state from the farmer's perspective and reflects the predicted outcomes of each variable when one or two driving variables are changed.

Continue to the next page to view suggestions and corresponding models.

**Increase Sustainability Practices**

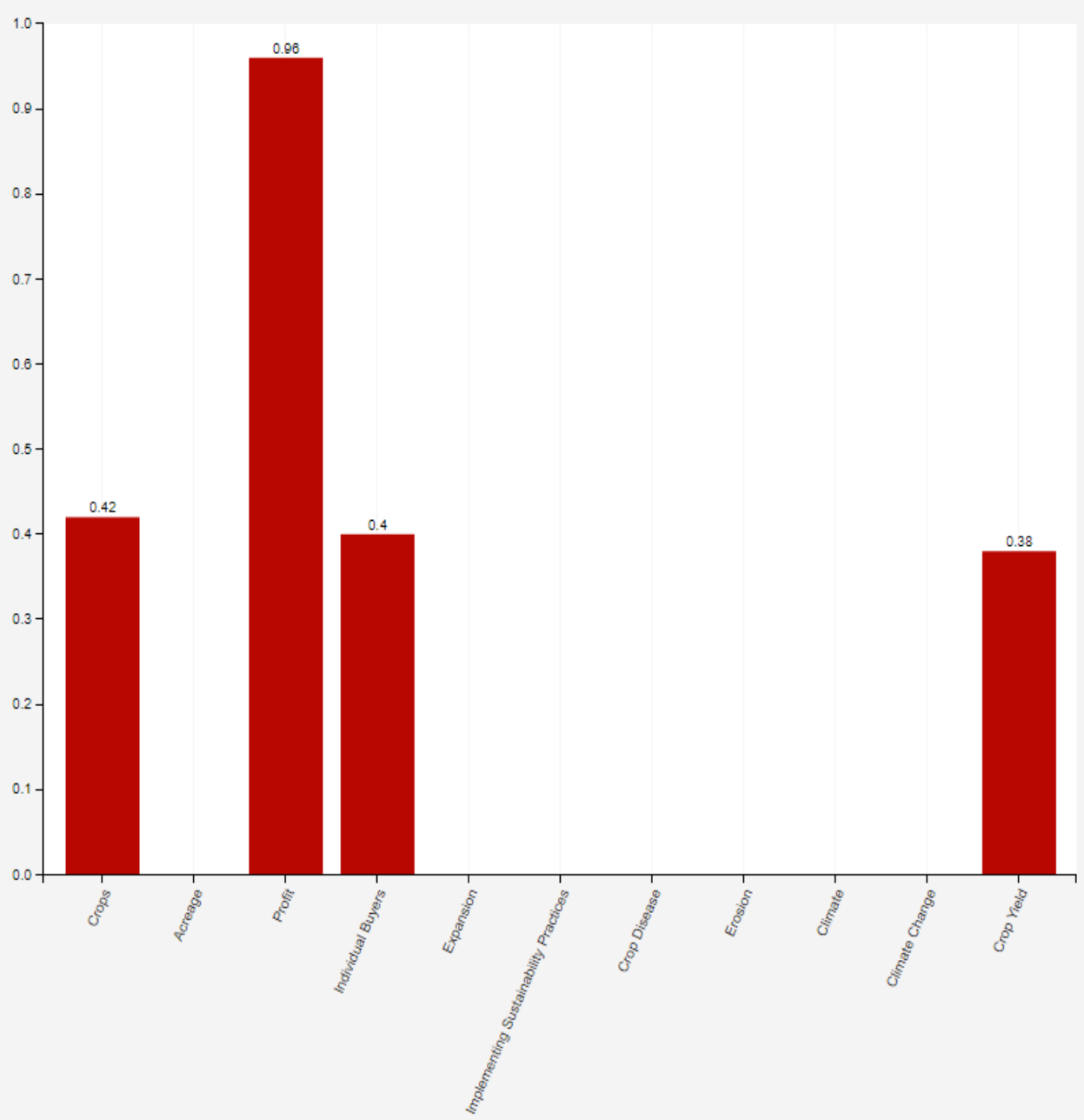



If Implementing Sustainability Practices is increased 100% (doubled), seven variables are affected:

- Profit will likely increase around 100%.
- Crops will likely increase over 95%.
- Acreage used will likely increase around 90%.
- Individual Buyers will likely increase over 80%.
- Expansion will likely increase 50%.
- Erosion will likely decrease 60%.
- Crop Disease will likely decrease around 30%.

Farmer 3 doubling their current sustainability practices, or expanding their sustainability with new practices, will likely improve the farm's overall well-being 70-100%. Farmer 3 may consider to implement sustainability practices discussed in the interview to test this model.

**Hire One Part-Time Employee**

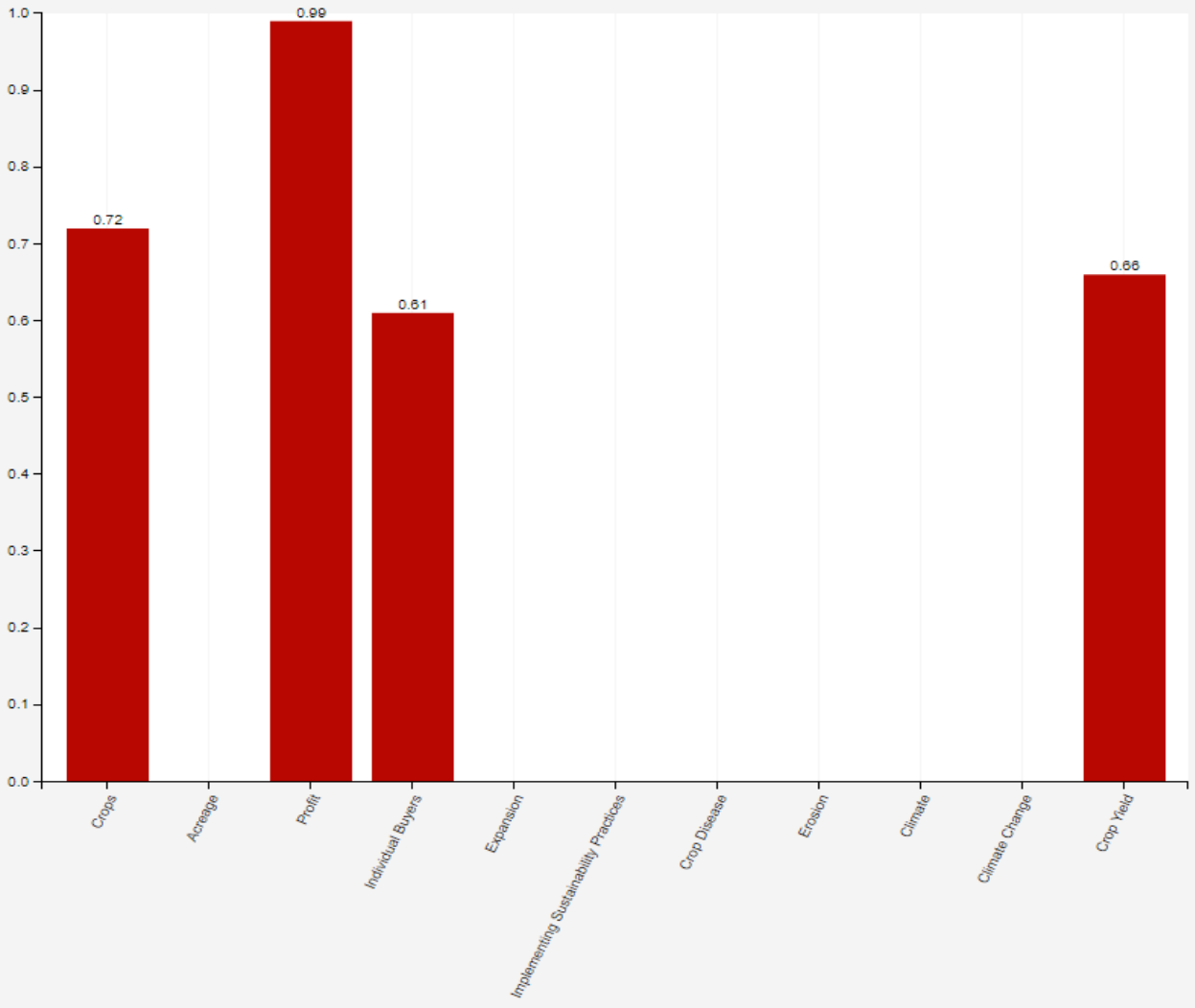



If Human Labor is increased 50% and Lacking Human Labor is decreased 100%, four variables are affected:

- Profit will likely increase over 95%.
- Crops, Crop Yield, and Individual Buyers will likely increase 40%.

Farmer 3 hiring a part-time employee will likely improve crop management and yield, attract more business from individual buyers, and almost double farm profit in return.

**Hire One Full-Time Employee**




If Human Labor is increased 100% and Lacking Human Labor is decreased 100%, four variables are affected:

- Profit will likely increase almost 100%.
- Crops will likely increase around 70%.
- Crop Yield will likely increase around 65%.
- Individual Buyers will likely increase around 60%.

Farmer 3 hiring a full-time employee will likely improve crop management and yield, attract more business from individual buyers, and almost double farm profit in return.

Though there is noticeable increase in crops, crop yield, and individual buyers between hiring one part-time employee and one full-time employee, there is not much change in the impact on profit. Farmer 3 may consider hiring one part-time employee over a full-time employee for maximum profitability.