

# THE CROPPER FOUNDATION

## IMPLEMENTATION OF SUSTAINABLE FARMING PRACTICES IN TRINIDAD'S NORTHERN RANGE COMMUNITIES

Second Stakeholders' Workshop

Wednesday 18<sup>th</sup> May, 2011

10:00 a.m. – 2:00 p.m.

Venue: St. Veronica's Chapel, La Plata Village, Caura

The EcoAgriCulture Project second stakeholders' workshop was held on Wednesday 18<sup>th</sup> May, 2011 with the purpose of mapping out a support structure of materials and information that can assist farmers in the Maracas/ St. Joseph and Caura/ Tacarigua communities in implementing more sustainable farming practices: see agenda and objectives of the workshop included as *annex 1*. A total of 38 persons attended the workshop, and comprised farmers from the Maracas/ St. Joseph and Caura/ Tacarigua communities, institutional representatives, and other stakeholders: see list of participants included as *annex 2*.

Keisha Garcia, President of The Cropper Foundation, provided the opening remarks for the workshop and welcomed and thanked participants for attending the workshop.

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### Summary of main points arising from discussions

#### ***1. Update on EcoAgriCulture Project***

A brief background on the EcoAgriCulture project was first provided by the project's manager, Maurice Rawlins to update participants who may have been unfamiliar with the project: see *annex 3* for presentation. Mr. Rawlins then highlighted the main activities that had been completed since the project began in 2009 including, the completion of the baseline assessment of the farming conditions in the Maracas/ St. Joseph and Caura/ Tacarigua Valleys; the first EcoAgriCulture project stakeholder's workshop held in November 2010; the intervention model for the implementation of sustainable farming practices; and funds secured from the FAO's TeleFood Special Funds. An outline of the activities over the next six months was provided, these include, high nature value indexing of farms in Maracas/ St. Joseph and Caura/ Tacarigua Valleys; designing individual farm management strategies; implementing sustainable farming practices; and linking the EcoAgriCulture to other initiatives.

#### General comments with respect to update:

- Several participants indicated and agreed that permaculture should feature as a guiding approach for sustainable farming practices in the Maracas/ St. Joseph and Caura/ Tacarigua communities.
- Participants inquired whether the prevailing problem of lack of tenure for farmlands would be addressed by this project. It was clarified that land tenure would not be addressed directly by the project, but rather it is something that has been considered in the design of the intervention model. Additionally it was recognized that tenure is a particularly important issue for the EcoAgriCulture project, as farmers may not be inclined to make the on-farm investments required for making farming practices more sustainable if there is a looming threat that they could be vacated from their lands with very short notice.

#### ***2. Farming in a High Nature Value (HNV) Environment and HNV Indexing***

A presentation on high nature value environments was given by Dr. Allan Williams as a precursor to demonstrating the High Nature Value Index; see *annex 4* for presentation. Dr. Williams used the example

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of the Northern Range as being a high nature value type environment because value can be found in a number of benefits that are provided by the Range, for example freshwater and food provision, crop diversity, recreational facilities, wildlife habitats and soil erosion regulation. One of the more salient points of Dr. William's presentation was the concept of the world and nature being perfect, and it is human understanding, information and knowledge that is imperfect. Therefore, we can look to natural systems for some of the solutions to the problems we currently face in farming such as disease and pest outbreaks. Dr. Williams demonstrated how the HNVI works, and how the index (score) indicates how eco-friendly a farmer's farming system is, and provides a preliminary indication of the reasons behind the types of farming practices that a farmer employs. On that basis, the HNVI then provides an entry-point for the project's technical team to being discussing the various practices that a farmer is engaged in, and if necessary, how those practices may be improved. Dr. Williams also highlighted the possible use of the index as a brand of recognition of good farming to support agricultural loan applications, and to establish supply relationships with hotels, restaurants and supermarkets.

### Points to note arising from discussion on HNV environment and HNV indexing

- Farmers voiced their concerns about adopting sustainable farming practices (SFPs), mainly a conversion to organic farming, highlighting that there is a significant cost attached to switching over farming systems including high labour costs, and there are risks involved in adopting SFPs which include: crop loss from pests, no guarantee of a premium price on crops, and no guarantee of sale of crops that may have blemishes.
  - It was suggested that in order to minimize risks to farms farmers could consider – in the case of converting to organic farming – to convert a small portion of their farms in the first year of conversion, and with every successive year a larger area of the farm could be converted. By doing this farmers can minimize the risk of large economic losses, and doing this enables the farmer to engage in some kind of experimentation to determine the methods that work best for him/her.
  - Dr. Williams also raised the point that assuming risk and experimentation is a natural part of farming, and that farmers - in attempting to adopt SFPs - need to understand what possible risks are, and to find ways to reduce those risks. It was suggested that farmers establish a system of monitoring and record-keeping to assist in determining the changing conditions of the farm, and on that basis farming practices could be continually restructured to meet those changing conditions.
  - The extension officer<sup>1</sup> for the Caura/ Tacarigua region made a point to note that farming that relies on consistent and extensive application of chemical fertilizers and pesticides is not sustainable in the long term as (i) the soil and the biodiversity contained within eventually dies rendering the soil effectively useless, and if it is to be restored it would require extensive, long-term, and costly treatments; (ii) the costs of chemical fertilizers and pesticides increase quite frequently, and these increases are not matched by increases in the sale of produce; (iii) usually when there are pest outbreaks the solution to the outbreak is found within natural systems, and therefore outbreaks of this kind may be avoided, if farms more closely resemble natural systems. This point was further substantiated by the chairman of the Trinidad and Tobago Agricultural Movement (TTOAM)<sup>2</sup> who indicated that in the 2002 Draft Sector Policy for Agriculture it was identified that there are hidden costs in agrochemical farming, which often outweigh the cost of organic farming.
  - It was suggested that farmers form co-operative type a groups which can facilitate sharing of labour, and sharing of tools that are used infrequently such as a weed-whacker, or wood chipper.

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<sup>1</sup> Ms. Averil Charles, Agricultural Extension Officer of the Ministry of Food Production Land and Marine Affairs

<sup>2</sup> Mr. Everard Byer

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- Farmers inquired about their options for reducing the high use of chemical fertilizers and pesticides when using genetically modified (GM) seeds. In addition, they asked how could indigenous seeds be preserved, and how could farmers using indigenous seeds be value or recognized.
  - It was suggested that the HNV index could be used to reflect the types of seeds that farmers are using. For example, farmers could get a high score if they used local seeds and a low score if imported GM seeds are used. If established as a requirement for securing agricultural loans, this could act as an incentive to farmers to source local seeds.
- Farmers inquired whether livestock was being considered as part of the project. Dr. Williams clarified that livestock was not considered as part of the project.
- TTOAM indicated a number of areas in which they could offer support:
  - Village-scale mulching projects. TTOAM can assist in providing the designs for composting structures, and working with the community to develop co-operative- type village mulching system.
  - Organic farm demonstration plots. A number of organic farm demonstration plots are situated in various parts of the country: Santa Cruz, Rio Claro and Fyzabad.
  - Training of organic farm technicians through organic farming training programme.

### ***3. Support to farmers in developing strategies for implementation of SFPs***

The project manager updated participants on fundraising activities for implementing SFPs noting that funds that had been secured from the FAO's TeleFood Special Funds for implementing SFPs in the Maracas/ St. Joseph community. Dr. Williams demonstrated how the results of the HNV index would be used to link farmers to a database which provides information on how farmers can modify their farming practices towards improving their HNV index. Dr. Williams outlined the likely process of support for farmers as part of the project: HNV indexing of farms→ Discussion with farmers on their farm's HNV index and if necessary how the index could be improved→ Participatory design of a farm management plan which indicates what the farmer could do in order to improve his practices. The farm management plan is meant to establish a common base among farmers for implementing SFPs, and will identify which farmers need material support and what kinds of support can be offered→ Material and information support to farmer→ Continuous dialogue with farmer to discuss benefits and challenges of implementing SFPs.

### **Points to note arising from discussion on support to farmers in developing strategies for implementation of SFPs**

- Participants inquired about the strategy for informing farmers about the project and its activities, and were informed that the farmers' organisations and the village councils in the Maracas/ St. Joseph and Caura/ Tacarigua areas were being targeted as channels through which information could be sent. It was suggested that the extension officers for the both areas be used as information channels as they are in close contact with farmers. Additionally, agricultural supply shops could be targeted as information points.
- It was suggested that a research component be embedded in the project that would demonstrate how SFPs are beneficial or how they may work. Such information could be used to assist farmers in analyzing the risks involved in implementing SFPs.
- Participants suggested that a version of the project be implemented in schools, as a way of raising interest in agriculture among youth, and getting more youth involved in agriculture. It was noted that the 4-H club in schools could be an inlet for information into schools, and that an appropriate information package on SFPs should be designed and made available for youth belonging to this club.

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- The Food Production Department of the University of the West Indies indicated two areas in which they could support:
  - Assisting in the development of related activities such as soil-quality testing;
  - Training for farmers in maintaining good soil quality.

In response to this offer, Dr. Williams indicated that university-level students could be involved in helping to gather and analyse data and information from farmers towards gaining more insight into trends in farming.
- The agricultural extension officer present noted that one of the problems that farmers currently face is that they are unable to diagnose the pest and diseases that are affecting their farms, and accordingly make poor decisions in dealing with their pest and disease problem; therefore would the project provide information to assist farmers in making these diagnoses. In response to this, Dr. Williams noted that the project is designed with an inherent learning capability, and stressed the importance of farmers doing record-keeping and monitoring of their farms, and consulting with extension officers towards identifying pests and diseases affecting their farms.
- The counselor for the Maracas/ St. Joseph area, raised the concern of insecurity of land tenure as a disincentive for implementing SFPs, particularly structural changes, and inquired how the project could help to address this issue. Dr. Williams reiterated that the scope of the project does not include securing land tenure for farmers, and highlighted that farmers facing this problem should carefully note and record the value of the investments in improving soil quality and structure of their farms, such that these values could be added to compensation received if they are evicted from the land. TTOAM indicated that they can offer advice and support to farmers on legal issues concerning land tenure.

#### ***4. Conclusions and Proposed Follow-up***

The programme manager concluded the workshop by reiterating the programme of activities over the next six months, and included in these the establishment of key contact points within the Maracas/ St. Joseph and Caura/ Tacarigua communities.

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## Annex 1: Agenda and Objectives of Workshop

### SECOND STAKEHOLDER WORKSHOP

Wednesday 18<sup>th</sup> May, 2011

St. Veronica's Chapel, La Plata Village, Caura

### Agenda

#### Opening:

- 9:30 - 10:00 a.m. Registration
- 10:00 - 10:10 a.m. Welcome and Opening Remarks by President, The Cropper Foundation  
*Keisha Garcia,*

#### Session 1

- 10:10 - 10:15 a.m. Workshop Objectives by Project Manager, *Maurice Rawlins*
- 10:15 – 10:30 a.m. Update on Project by Project Manager, *Maurice Rawlins*
- 10:30 – 10:45 a.m. Farming in a High Nature Value Environment, *Dr. Allan Williams*
- 10:45 – 11:15 a.m. Demonstration of the High Nature Value Index, *Dr. Allan Williams*
- 11:15 – 11:30 a.m. Participants' Response to the High Nature Value Index

11: 30 a.m. - 12:30 p.m. **LUNCH BREAK**

#### Session 2

- 12:30 – 12:45 p.m. Support to farmers for farmers in developing strategies for implementation of sustainable farm practices, *Maurice Rawlins; Dr. Allan Williams*
- 12:45 – 1:30 p.m. Discussion on strategies for implementation of sustainable farm practices
- 1.30– 2.00 p.m. Conclusions and Proposed Follow-up by Technical Consultant

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## **SECOND STAKEHOLDER WORKSHOP**

**Wednesday 18<sup>th</sup> May, 2011**

**St. Veronica's Chapel, La Plata Village, Caura**

### **Workshop Objectives**

1. To introduce the concept of 'Farming in a high nature value environment' and how the High Nature Value Index works;
2. To demonstrate the background information that would support farmers in developing strategies for implementation of sustainable farm practices;
3. To provide an opportunity for farmers and other stakeholders to share ideas on strategies for implementation of sustainable farming practices;
4. To collectively determine the material support that would be made available to farmers engaged in readjusting their farming practices.

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### Annex 2: List of Participants

	<u>Name</u>	<u>Address</u>	<u>Telephone</u>	<u>E-Mail</u>	<u>Affiliated organization</u>
1)	Franklyn Reyes	El Lluengo Village, San Gregoria Rd, Maracas St. Joseph	645-8727 (h) 385-9361 (c)		Maracas Farmers Group
2)	Nigel Bernard	San Gergerio Rd. Lluengo Village L.P 57, Maracas St. Joseph	356-2397/314-9259 (c)		Maracas Farmers Group
3)	Samuel John	Labaja Road, Maracas St Joseph	378-7903 (c)		Maracas Farmers Association
4)	Ann Graham	Labaja Road, Maracas St Joseph	378-7903/4 (c)		Maracas Farmers Association
5)	Marina Noreiga	#113 San Pedro Rd, Lluengo Village, Maracas St. Joseph	351-0655 (c)	marinanoreiga@hotmail.com	Maracas St Joseph Association and A.S.T.T
6)	Nolasco Farrier	Buena Vista Street, St Joseph	319-5693 (c)		Maracas Farmers Group
7)	Rewtee Hernandez	57 San Pedro Road Lluengo Village, Maracas St. Joseph	363-1183 (c)		Maracas St Joseph Farmers Association and A.S.T.T
8)	Yusuff Herbert	100 6 <sup>th</sup> Street, Barataria	469-8469 (c)	Brad_bond101@yahoo.com	Agriculture Society of Trinidad and Tobago
9)	Joan Reyes	El Lluengo Village, San Gregoria Rd, Maracas St. Joseph	645-8727 (h) 385-9361 (c)		Maracas Farmers Group

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	<u>Name</u>	<u>Address</u>	<u>Telephone</u>	<u>E-Mail</u>	<u>Affiliated organization</u>
10)	Mohammed Hallim	2 Eastern Main Road, Curepe	645-7264 (h) 390-3329 (c )	mkihallim@hotmail.com	Maracas Farmers Group
11)	Kurt Applewhite	48B maracas Royal Rd, St. Joseph	314-0098 (c )		Maracas Farmers Group
12)	Asha Sookdeo	3 ¾ M Caura Royal Road, Caura	384-5280 (c )		Secretary of Caura Valley farmer Association
13)	Kevin Balgobin	Corcondia Road, Caura Valley	756-4474 (c ) 372-4701 (c )		Caura Farmer
14)	Andre Reyes	Burton Trace Riverside Rd, Curepe	327-0356 (c )		
15)	Quddus Muhammad	Tumbason Rd	313-7758 (c )		Caura Valley Council
16)	R. Joefield	Tumbason Rd	314-9907 (c )		Caura Valley Council
17)	Pat McGaw	Alta Garcia, Maracas St. Joseph	753-5177 (c )	<a href="mailto:pmcgaw@tstt.net.tt">pmcgaw@tstt.net.tt</a> <a href="mailto:pmcgaw@gmail.com">pmcgaw@gmail.com</a>	Maracas Valley Action Committee
18)	Kiara Williams	LP 119 Caura Royal Rd, La Platta Village Caura	759-4594 (c )		Caura Northern Hiking Clip Association
20)	Ann Marie James	LP 119 Caura Royal Rd, La Platta Village Caura	708-8345 (c )		Caura Northern Hiking Clip Association. Caura Women Group
20)	Avril Charles	Farm Road, Curepe	662-5127	avril_charles@yahoo.com	Ministry of Food Production, Land and Marine Affairs

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	<u>Name</u>	<u>Address</u>	<u>Telephone</u>	<u>E-Mail</u>	<u>Affiliated organization</u>
21)	Winston Ramsaroop				Councillor Tunapuna/Piarco Regional Corporation
22)	Dr. Gaius Eudoxie	Department of Food Production, UWI	662-2002 EXT. 3515 (w) 781-4661 (c)	Gaius.eudoxie@sta.uwi.edu	UWI
23)	Dr. Mark Wuddivira	Department of Food Production, UWI	662-2002 EXT. 4412/4295 (w)	Mark.wuddivira@sta.uwi.edu	UWI
24)	Mr. Everard Byer		633-2235	ttoam@yahoo.com	Trinidad & Tobago Organic Agricultural Movement (TTOAM)
25)	Mr. Beaumont Celestain	Carlos Street Woodbrook		tcbeaumont@hotmail.com	Consultant
26) 27)	Two Representatives				Ministry of Food Production, Land and Marine Affairs
28)	Erle Rahaman- Noronha	15 La Sieva Road, Maraval	673-4180; 373-2890	wasamaki@tsst.net.tt	Owner and manager of Wasamaki Permaculture
29)	Nerisha Bachu				Senior Hydrological Technician, Water Resources Agency
30)	Keisha Garcia	Building 7, Fernandes Industrial Centre, Laventille, Port of Spain	626-2628	kgarcia@thecropperfoundation.org	President, The Cropper Foundation

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	<u>Name</u>	<u>Address</u>	<u>Telephone</u>	<u>E-Mail</u>	<u>Affiliated organization</u>
31)	Maurice Rawlins	Building 7, Fernandes Industrial Centre, Laventille, Port of Spain	626-2628	mrawlins@thecropperfoundation.org	Project Manager, The Cropper Foundation
32)	Alexander Girvan	Building 7, Fernandes Industrial Centre, Laventille, Port of Spain	626-2628	alexander.girvan@gmail.com	Research Assistant, The Cropper Foundation
33)	Keston Finch	Building 7, Fernandes Industrial Centre, Laventille, Port of Spain	626-2628	kmfinch@hotmail.com	Research Assistant, The Cropper Foundation
34)	Allan Williams	Tumpuna Gardens Arima	798-5635	lupap@hotmail.com	Technical Advisor

Note that 4 participants did not submit registration forms.

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## Annex 3: Update on EcoAgriCulture Project



**Implementing Sustainable Farming Practices in Trinidad's Northern Range Communities (EcoAgriCulture) Project**

**2<sup>nd</sup> Stakeholders Workshop**  
Wednesday 18 May, 2011  
St. Veronica's Church, Caura

Maurice Rawlins, The Cropper Foundation  
<http://tcf sustainablefarming.weebly.com/>



**EcoAgriCulture Project**

**Workshop Objectives**

1. Introduce the concept of 'Farming in a high nature value environment' and how the High Nature Value Index works;
2. Demonstrate the background information that would support farmers in developing strategies for implementation of sustainable farm practices;

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## EcoAgriCulture Project

### Workshop Objectives

3. Provide an opportunity for farmers and other stakeholders to share ideas on strategies for implementation of sustainable farming practices;
4. Collectively determine the material support that would be made available to farmers engaged in readjusting their farming practices

## EcoAgriCulture Project

### Workshop Agenda

#### Opening:

- 9:30 - 10:00 a.m. Registration
- 10:00 - 10:10 a.m. Welcome and Opening Remarks by President, The Cropper Foundation *Keisha Garcia,*

#### Session 1

- 10:10 - 10:15 a.m. Workshop Objectives by Project Manager, *Maurice Rawlins*
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#### **LUNCH BREAK**

#### Session 2

- 12:30 - 12:45 p.m. Support to farmers for farmers in developing strategies for implementation of sustainable farm practices, *Maurice Rawlins; Dr. Allan Williams*
- 12:45 - 1:30 p.m. Discussion on strategies for implementation of sustainable farm practices
- 1:30 - 2:00 p.m. Conclusions and Proposed Follow-up by Technical Consultant

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### EcoAgriCulture Project

#### Background to EcoAgriCulture Project

- 2-year project started in 2009 and funded by a grant from the Inter-American Development Bank
- To address some issues related to small-scale and subsistence farming in the Northern Range
  - Unsustainable land clearing practices
  - Farming on steep slopes without erosion prevention practices
  - Overuse of inorganic chemicals on farms
- Main aims:
  - Develop a community-based model for sustainable hillside farming
  - Deliver greater economic gain to farmers
  - Alleviate environmental threats caused by farming practices

### EcoAgriCulture Project

#### Background to EcoAgriCulture Project

- So far:
  - Completed Baseline Assessment of Farming Conditions in Maracas/ St. Joseph and Caura/ Tacarigua Communities
  - First Project stakeholders workshop in November, 2010
  - Designed Intervention Model for Implementing Sustainable Farm Practices
  - Secured funds for material support towards implementing sustainable farming practices in the Maracas/ St. Joseph Valley

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## EcoAgriCulture Project

### Background to EcoAgriCulture Project

- What's next?
  - High nature value (HNV) indexing of farms in Maracas/ St. Joseph and Caura/ Tacarigua watersheds
  - Discussions with farmers on how farm practices can be improved, and how improvements can be made
  - Implementing farm practices
  - Another HNV indexing to measure impact of implemented farm practices
  - Developing linkages with other projects/ initiatives

## EcoAgriCulture Project

Thank You.

Questions?

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## Annex 4: Farming in a High Nature Value (HNV) Environment and HNV Indexing

# The High Nature Value Index

## Purpose and Functionality

By

Allan N. Williams

*(Technical Coordinator)*

Participants' Workshop

May 18, 2011

# THE WORLD IS PERFECT

*It is just our knowledge of it that is  
imperfect*

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## *For Example* Today's News Flash

**Chemical-infused watermelons  
explode in China:**

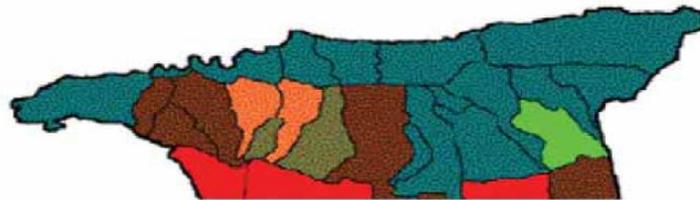


**AP Published May 17:**

A farmer holds up the packaging  
for chemicals used on  
watermelons that had burst in  
Danyang city in eastern China

## The High Nature Value Environments in Trinidad:

Fig. 21: Assessment of Watershed Quality (1999)



-  1.1 Good in whole watershed
-  1.2 Good in upper watershed,  
moderate in lower part
-  1.3 Good in upper watershed,  
bad in lower part
-  2.1 moderate in upper watershed
-  2.2 Moderate in upper watershed,  
bad in lower part
-  2.3 bad in nearly whole watershed

Source: DHV Consultants BV (1999)

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WHAT IS IMPORTANT ABOUT FARMING IN THIS

## HIGH NATURE VALUE ENVIRONMENT

**WHO CARES?**

1. **You should** - about how costly it will become to maintain your productivity;
2. **Downstream farmers** - about what is coming down from your farm;
3. **WASA** – about the quality of the water they are collecting and the silting up of their reservoirs;
4. **Downstream communities** – about significant runoff and potential threat to life and property
5. **The Regional Corporation** – about flood damage between the EMR and the CRH
6. **The EMA** – about maintaining the integrity of the Landscape;
7. **The IMA** - about Protection of the Marine Environment from Land-Based Activities.

When this Environment is in	Average annual (t/ha-1/year-1)	Soil Loss factor
Natural forest	0.046	<b>1</b>
Degraded forest	0.516	<b>12</b>
Grassland	2.673	<b>63</b>
Cultivation	11.878	<b>279</b>
Source (Faizool 2002)		

WHAT IS IMPORTANT ABOUT FARMING IN THIS

## HIGH NATURE VALUE ENVIRONMENT

- 1) You cannot farm in an High Nature Value Environment and pretend you do not know about **RESPONSIBLE LAND USE**.
- 2) You cannot be supporting farmers in this environment with advice that does not contribute to **GOOD STEWARDSHIP**
- 3) You cannot expect farmers in this environment to support your concerns and not give priority to **SUSTAINABLE FARMING PRACTICES**

**So what is the HIGH NATURE VALUE (HNV) INDEX?**

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## Know your HNV Index Number

**HNV INDEX = 65**

**HNV INDEX = 39**



## Let us see how the HNV Index Works

Section	Context	Score
1	Farmer Personal Data	100%
2	Farm Location	100%
3	Soil Characteristics	100%
4	Crops Grown (during the year)	100%
5	Pest/ Disease/ Weeds Pressure	62%
6	Typical Agronomic Practices	44%
7	Fertilization Practices	13%
8	Management of Crop Growth	28%

[What does my HNV Index mean?](#)

[How can I improve my index?](#)

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WHAT DOES THE INDEX VALUE MEAN		HOW CAN I IMPROVE MY SCORE
100 -86	Your practices definitely have a strong Ecological bent. Continue to follow your practices and share it with others	<p><b><u>Find Out How To:</u> (48)</b></p> <ol style="list-style-type: none"> <li>1. Learn From Nature</li> <li>2. Improve the soil Quality</li> <li>3. Protect your investment in your soil.</li> <li>4. Make your soil more fertile</li> <li>5. Manage Plant Nutrients</li> <li>6. Meet Your NPK Needs</li> <li>7. Manage Weed Pressure</li> <li>8. Start an Eco-Friendly Crop System</li> <li>9. Make Profits in this environment</li> </ol>
85 -65	You are definitely on the way to a strong Eco-Friendly farming practice. Strengthen your practices by examining the weak points.	
64 - 45	There may be some lessons that you can learn from Nature itself. If you are interested in pursuing a more Eco-friendly farming practice, explore some of the alternatives	
Below 44	There may be a few "chemical" uses that is causing your index to tank. You can definitely improve your performance by changing both your inputs and also your approach to crop production.	