



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative

Mulch Mulch Mulch

Manny Reyes
Research Professor, Kansas State University

Regional Forum on Agroecology Futures

Siem Reap Apsara Palace Resort, Siem Reap, Cambodia, November 6 – 8, 2018



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Thanks to my lovely wife



Dr. Lorna Reyes
Analytics Software
Tester
SAS, Cary, NC



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Thanks to my two sons

Micah

North Carolina State University, BS Civil and Environmental Engineering, and MS in Marine Sciences; currently designing various gadgets, 33 years old no girlfriend. I told him my need to be a grand dad, he said not yet.



Zach kissing an ancient smiling face in Angkor

Wat, Cambodia

Thanks to my son Zach

2011

12 years old

2012

13 years old

2013

14 years old

2014

15 years old



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Stephane 'macho' Boulakia --- My Teacher in Conservation Agriculture



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International Soil and Water Assessment Tool (SWAT) Model Southeast East Asia Conference October 22 to 25, 2018, Siem Reap, Cambodia



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I am so proud of Cambodia. All pictures and examples are:

Made in Cambodia

I am proposing to be the

'Center of Conservation Agriculture in Southeast Asia'



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Conservation Agriculture on Commercial Vegetable Home Gardens It Works!!!!



Manuel R. Reyes
Kansas State University



Happy! Happy! Happy! Happy! Happy! Happy! Happy! Happy! Happy! Happy!



Photo by Ren Ry



Photo by Ren Ry



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MC D

Minimum soil disturbance

No tillage



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Minimum soil disturbance no-tillage





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Minimum soil disturbance no-tillage

**Kudos to the SIIL
Appropriate Scale
Mechanization
Consortium team look
at the posture**



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MCD

Continuous mulch



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Continuous mulch



Continuous mulch





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MCD

Diverse species



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Diverse in time



Diverse in space





Diverse in space



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Cambodian Widow Ms. Lamom
Asking for **MULCH, MULCH, MULCH.** *Our about 80 Cambodian women farmers practicing CA for Veggie production are asking for:*

MULCH, MULCH, MULCH



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Urgent Need of Mulch



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Fodder resource after rice, sandy podzolic soil (80% sand, Stung Chinit)

Slide from a presentation of Vira Leng et al, 2017

April 2015

Stylosanthes guianensis and *Centrosema pascuorum* (April 2015)



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**We moved from 1.5 ton to over 4 tons of Pkha Rumdoul in Stung Chinit
(> 80% sand, less than 1% of OM)**

Slide from a presentation by Vira Leng et al, 2017

Pkha Rumdoul direct seeded on mulch of *S. guianensis* and *C. Pascuorum*



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Farmer Lamoms 500 square meters lowland rice field with centrosema, dry season 2018, Picture provided by Ren Ry

USAID-SIIL-WAgN project



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Successful sowing in no-tillage conservation agriculture seven-500 square meter lowland rice fields. 2018 growing season, Siem Reap, Cambodia.

USAID-SIIL-WAgN project

Pictures courtesy of Ren Ry



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How can we provide Mulch, Mulch, Mulch from Main Crops to Women Farmers like Widow Lamom?



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Thank you



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