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DEL PUEBLO DE LOS ESTADOS  
UNIDOS DE AMÉRICA



# **The Peru Cocoa Alliance Experience on Expanding Fine Flavor Cocoa under Agroforestry Systems: learned lessons and challenges**

**A contribution to make Peru a reliable and  
sustainable source of fine flavor cocoa for the  
World Chocolate Industry**

**Thrid World Cocoa Conference | Bávaro, República Dominicana  
May 22 -25, 2016**

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# 1. The Peru Cocoa Alliance (PCA)

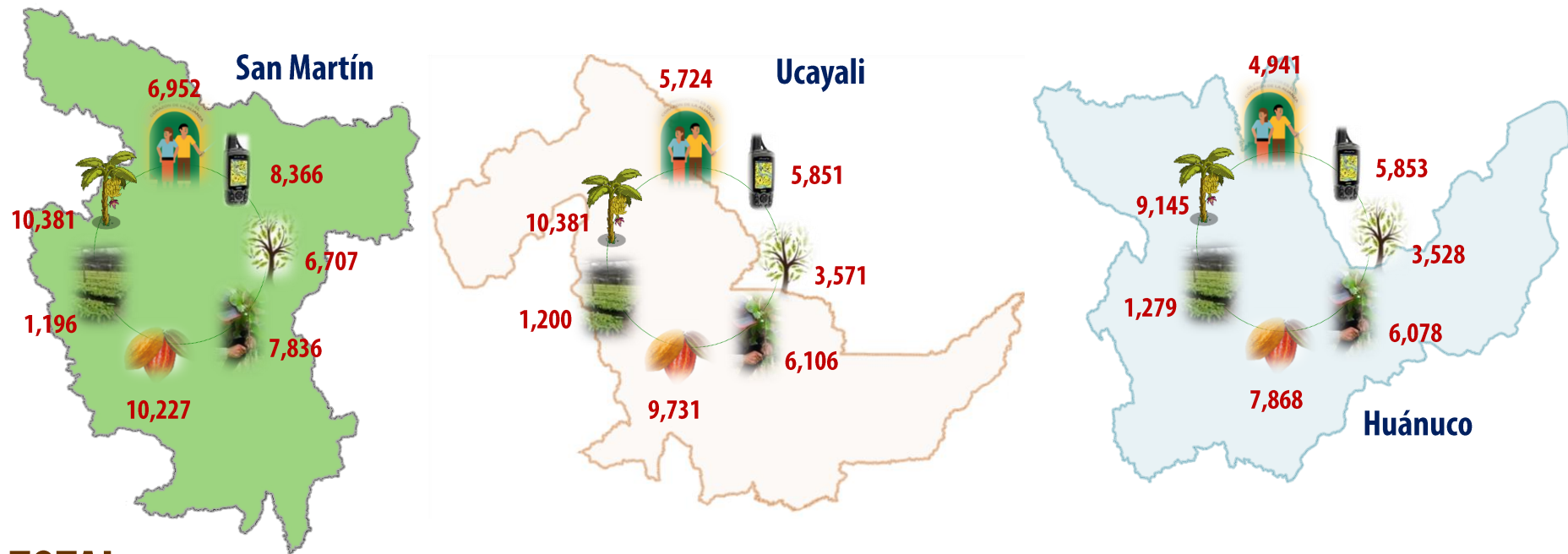
- PCA is a public-private partnership initiative supported by USAID .
- Contribute to the development of the ****fine flavor cocoa**** value chain in Peru.
- Create more opportunities of licit economics activities for farmers who abandoned the illegal coca cultivation.








## 2. Peru Cocoa Alliance Goals: 2012-2016



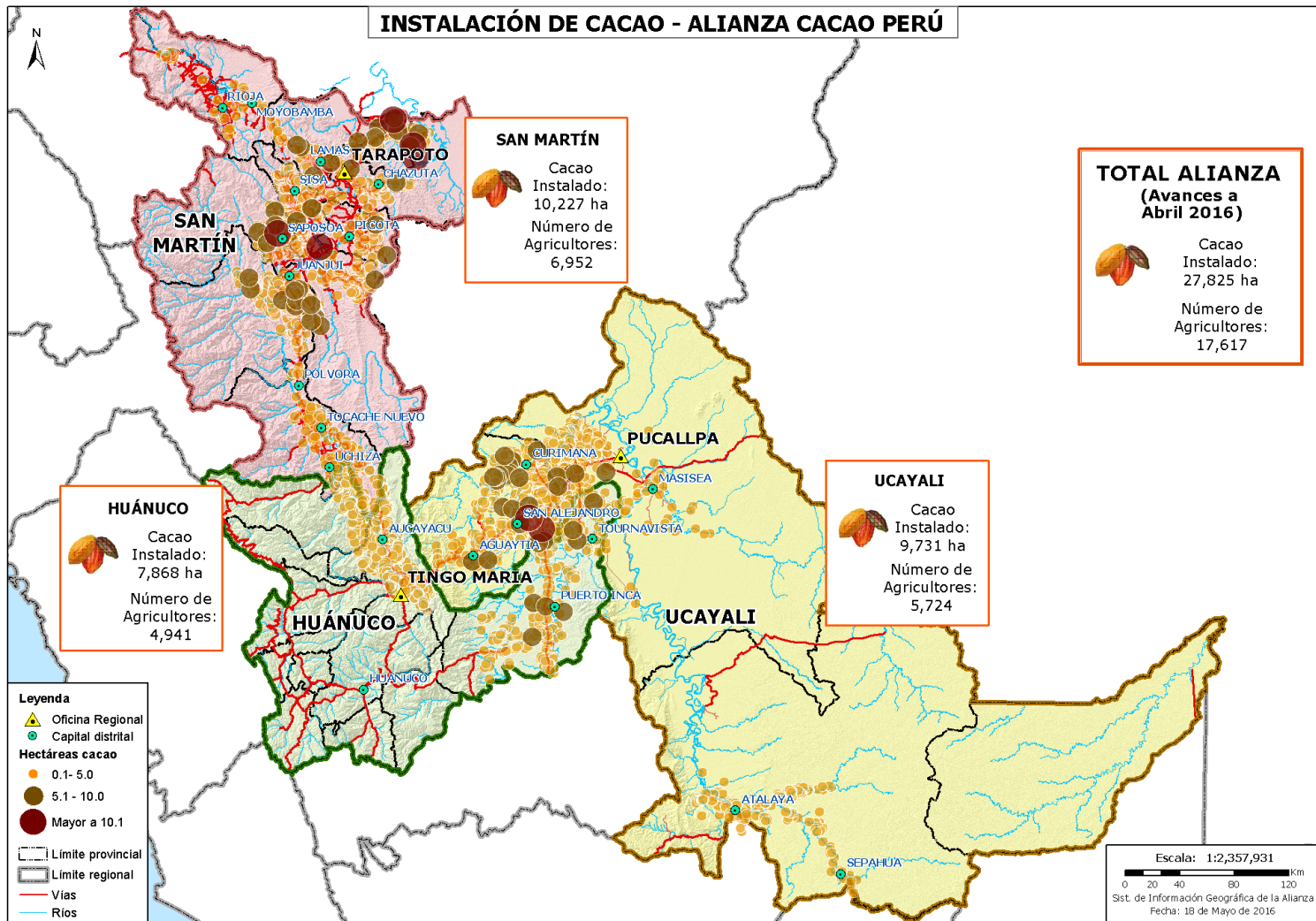
- Installation of 28,000 ha of cocoa
- Graft 23,000 ha of fine flavor cocoa
- Georeference 23,000 ha of fine flavor cocoa
- Install 16,700 ha of fine flavor cocoa under the agroforestry system
- Incorporate 16,000 small-scale producers on fine flavor cocoa business plans

# 3. Peru Cocoa Alliance Achievements, April 2016



<b>TOTAL</b>	<b>17,617</b>	<b>30,136</b>	<b>27,825</b>	<b>3,675</b>	<b>20,021</b>	<b>13,807</b>	<b>20,070</b>
							
Familias socias participantes	Sombra temporal (ha)	Cacao instalado (ha)	Viveros de cacao (ha)	Cobertura de cacao injertado (ha)	Especies forestales (ha)	Hectáreas georreferenciadas	

PCA intervention  
area:  
3 regions,  
16 provinces,  
84 districts,  
1,006 communities,  
17,600 producers



## 4. Four Key Issues based on the PCA Experience

- 4.1. Choosing competitive fine flavor varieties and the “clonal” arrangements technology.
- 4.2. Generating fine flavor cocoa planting material for more 23,000 ha, supply and demand coordination.
- 4.3. Facing the risk to promote deforestation : the Alliance Agroforestry System, recover deforested areas and carbon sequestration impact.
- 4.4. Reducing transaction costs: fine flavor cocoa georeferenciation and traceability.



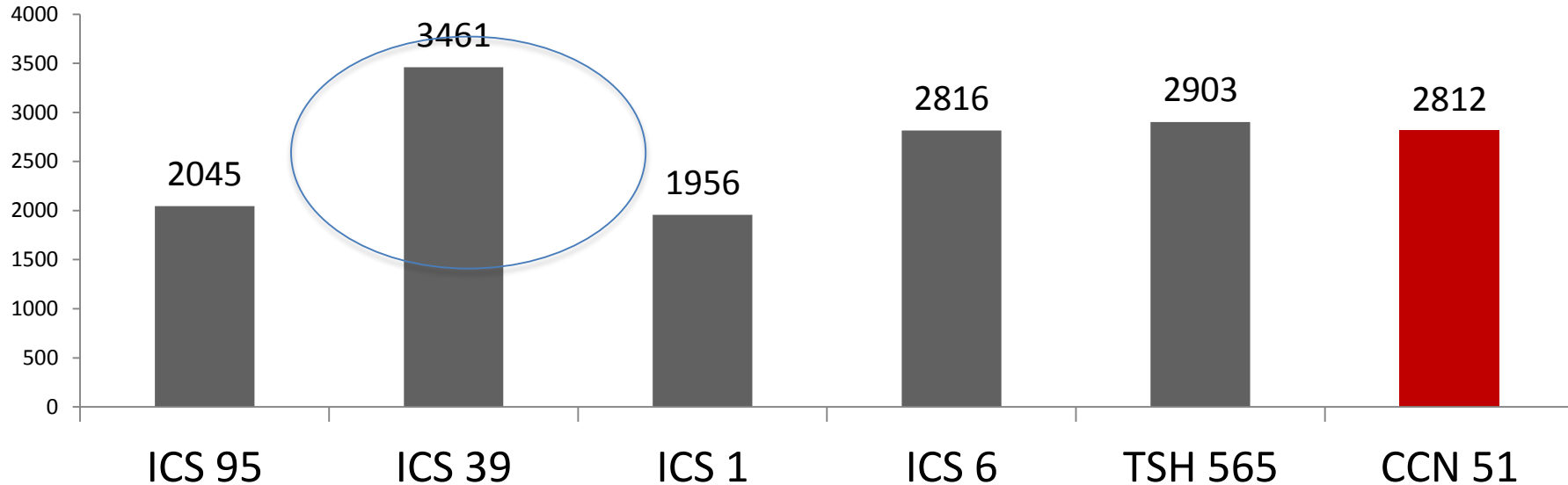
## 4.1. Trinitario hybrid cocoa selected by the Peru Cocoa Alliance for its arrangements.

The Alliance has selected seven trinitario clones that comply with the fine flavor characteristics:

1. ICS1
2. ICS6
3. ICS39
4. ICS95
5. TSH565
6. UF 667
7. IMC 67

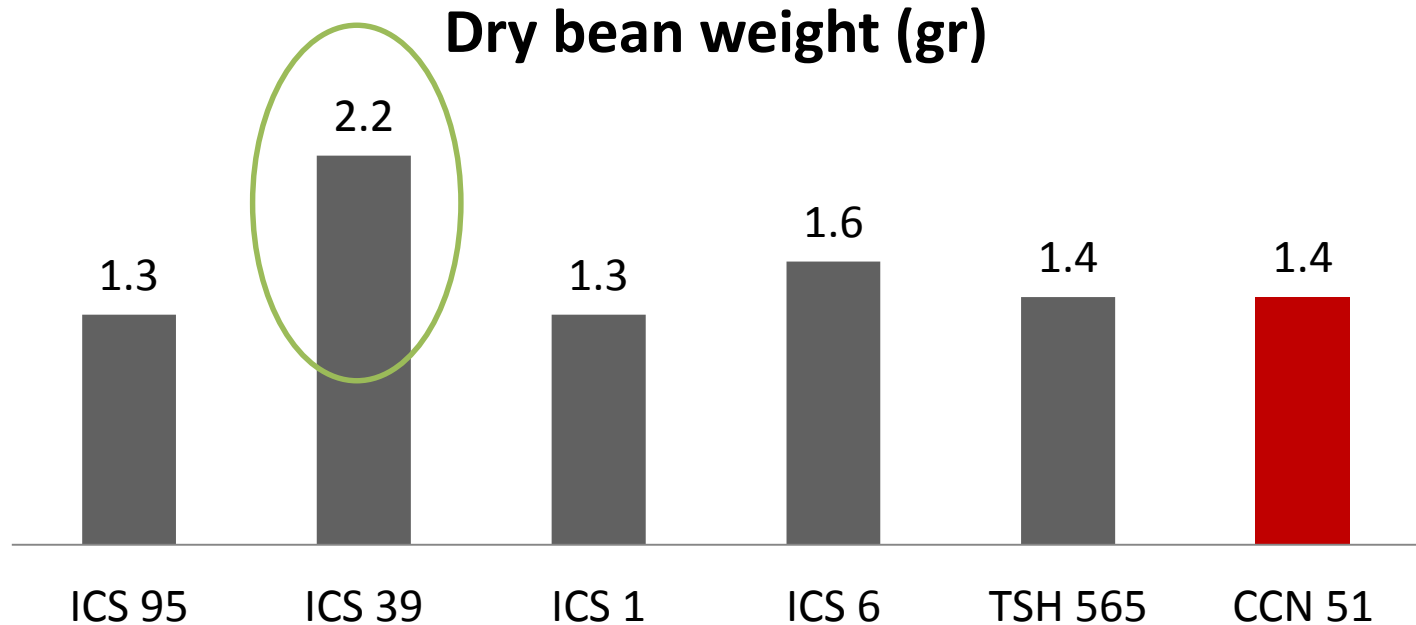


# Fine Flavor Cocoa Yield Potential (kg/ha, dry bean)



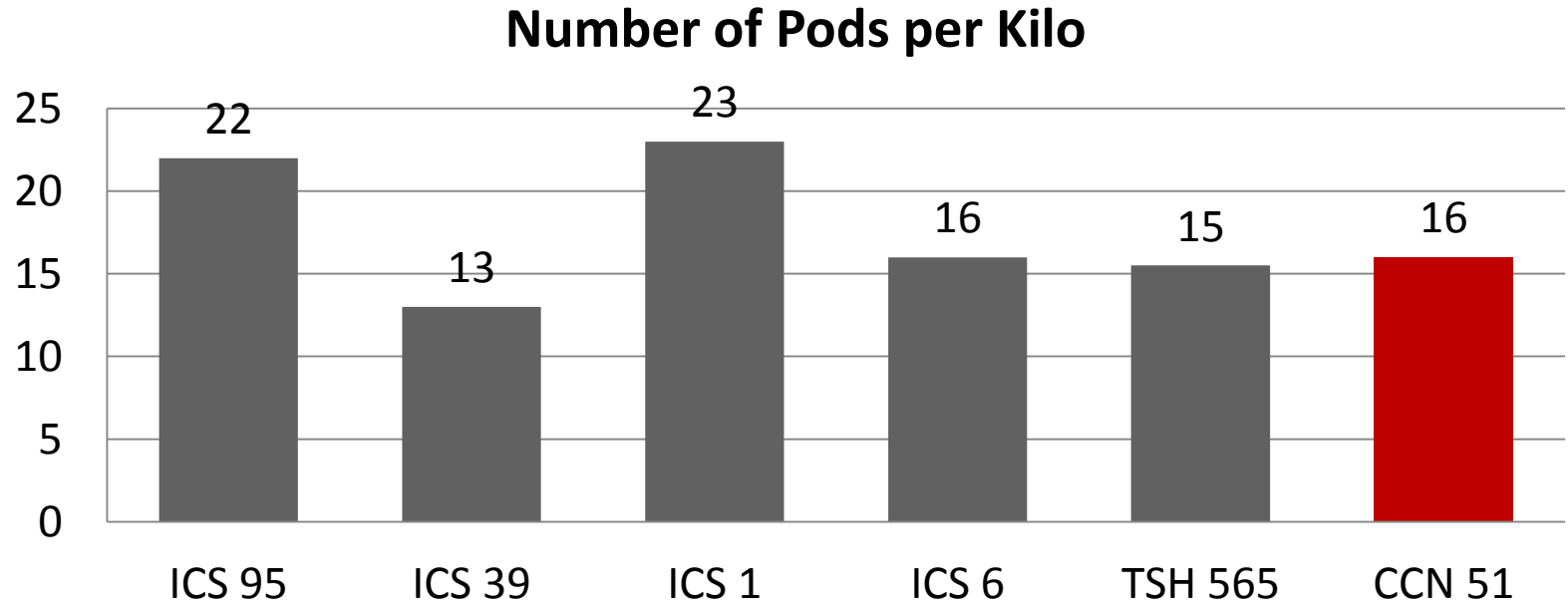
Source: García Carrión (2012), "Catálogo de Cultivares de Cacao del Perú," published by MINAGRI and DEVIDA.

# Fine Flavor Cocoa Bean Weight



Source: García Carrión (2012), "Catálogo de Cultivares de Cacao del Perú," published by MINAGRI and DEVIDA.

# Number of Pods per Kilo of Fine Flavor Cocoa



Source: García Carrión (2012), "Catálogo de Cultivares de Cacao del Perú," published by MINAGRI and DEVIDA.



## 4.1. The clonal arrangement technology for fine and flavor cocoa expansion

- Agroforestry systems using fine flavor cocoa "*clonal arrangements*" .
- A "clonal arrangement" is a combination of different cocoa hybrids with a high level of sexual intercompatibility, which ensures more flowering and therefore more productivity.


# Fine Flavor Cocoa Sexual Compatibility Matrix




MADRE (♀)


CLON		ICS					TSH		EET		CCN	IMC	FLE		SCC	CAU		SC
		1	6	39	60	95	565	812	8	96	51	67	2	3	61	39	43	6
ICS	1	95														★		
	6		50						★				★	★			★	★
	39			3				★										
	60				3			★										
	95					85							★					
TSH	565		★	★	★	★	3	★	★		★							
	812		★					60		★			★		★			
EET	8		★			★	★		5							★		
	96		★			★				70	★		★	★	★		★	★
CCN	51		★	★	★		★		★		63		★	★		★	★	
IMC	67	★		★	★	★	★	★				0	★					
FLE	2					★	★	★		★	★		15				★	
	3		★	★	★	★			★	★				3				
SCC	61	★						★		★					3			
CAU	39			★				★	★			★				0		★
	43		★	★					★	★						★	0	
SC	6		★					★		★			★	★			★	13


PADRE (♂)

 Inter-Compatible (≥ 30%)

 Inter-Compatible (≥ 70 %)

 Inter-Incompatible (< 30 %)

 Inter-Incompatible (< 30%)

 Inter-Incompatible (< 30 %)

 Inter-Incompatible (< 30%)

## 4.1. Trinitario hybrid cocoa arrangements of the Peru Cocoa Alliance



A total of six different arrangements have been created, ensuring high sexual compatibility and, therefore, high yields, using Colombia's Casa Luker's and Colombia's Federación de Cacaoteros matrix:

**ARRANGEMENT 1:** (33% ICS95 / 33% ICS 39/ 17% ICS1/ 17% TSH 565)

**ARRANGEMENT 2:** (50% ICS39 /25% ICS 95/ 25% IMC67)

**ARRANGEMENT 3:** (37.5% ICS39 / 25% ICS 95/ 25% TSH 565 / 12.5% ICS1)

**ARRANGEMENT 4:** (50% ICS39/25% ICS95/ 12.5% IMC67/ 12.5% ICS6)

**ARRANGEMENT 5:** (46% ICS95/ 27% IMC67/ 27% ICS1)

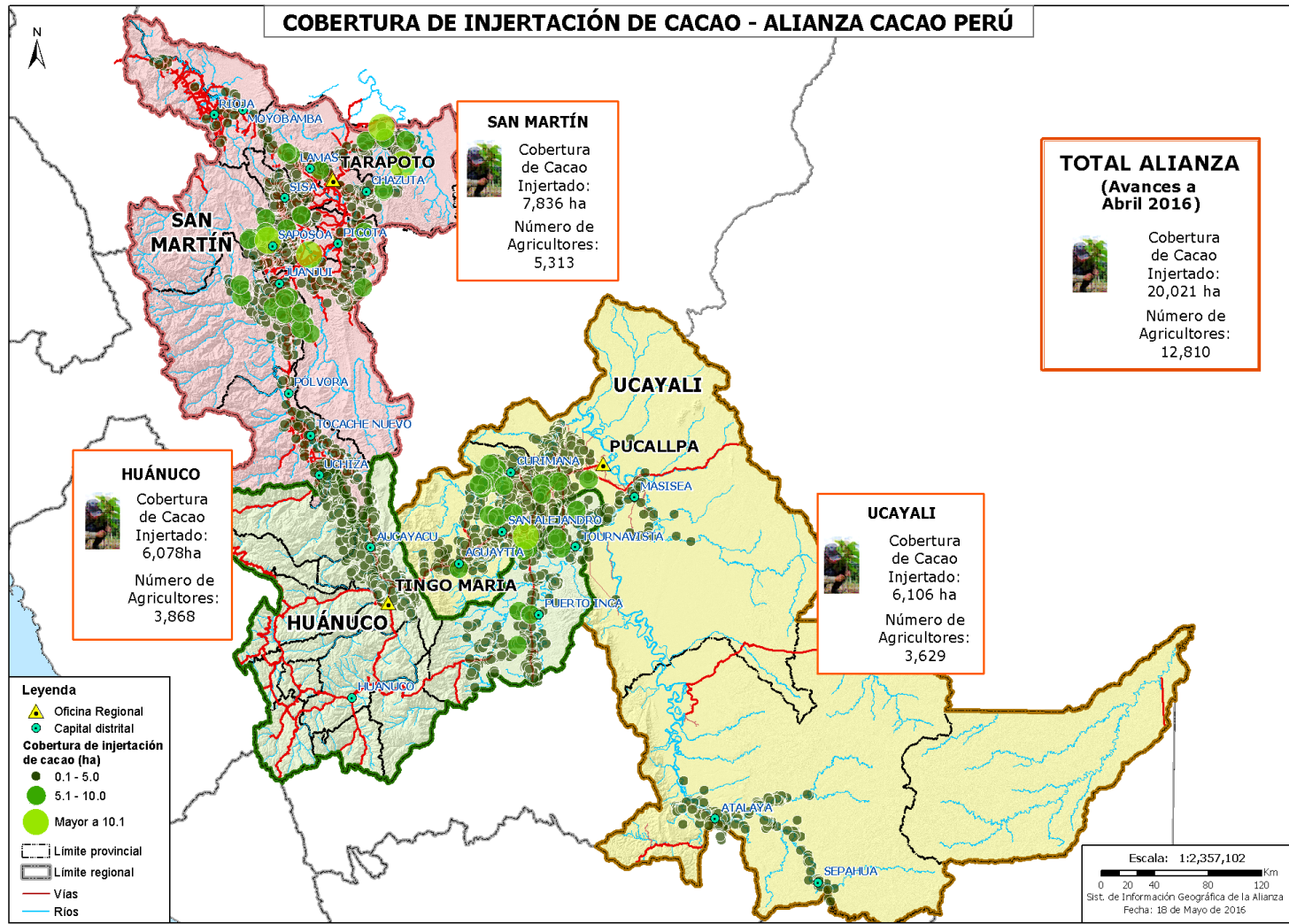
**ARRANGEMENT 6:** (60% ICS 95/ 35% ICS39/ 5% ICS6)

## 4.2. The challenge to produce and to deliver planting material



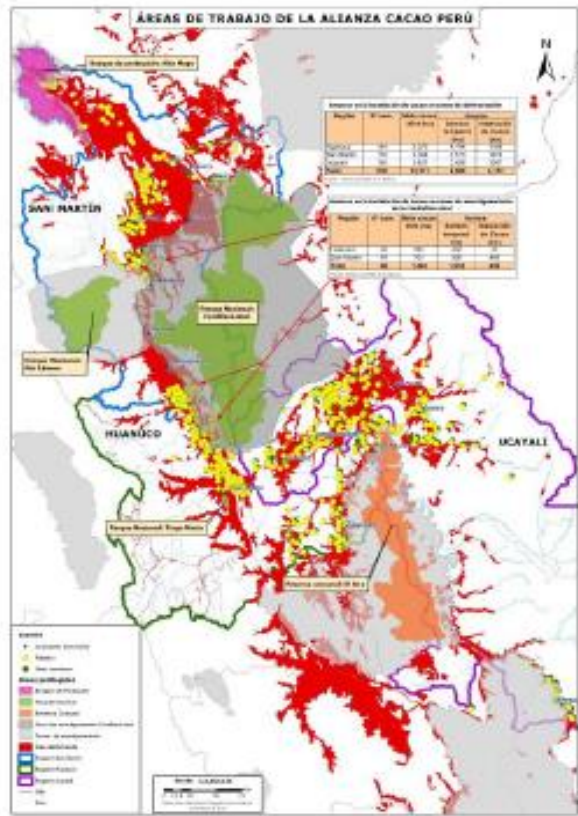
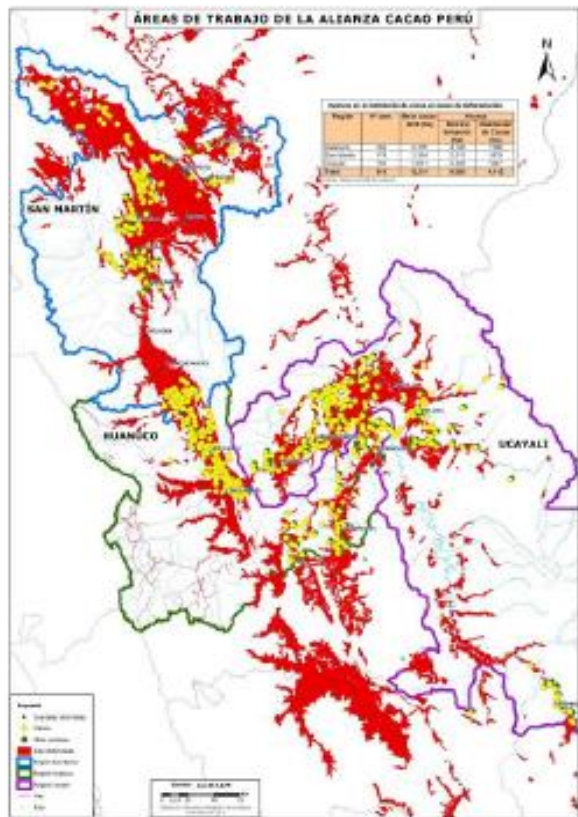
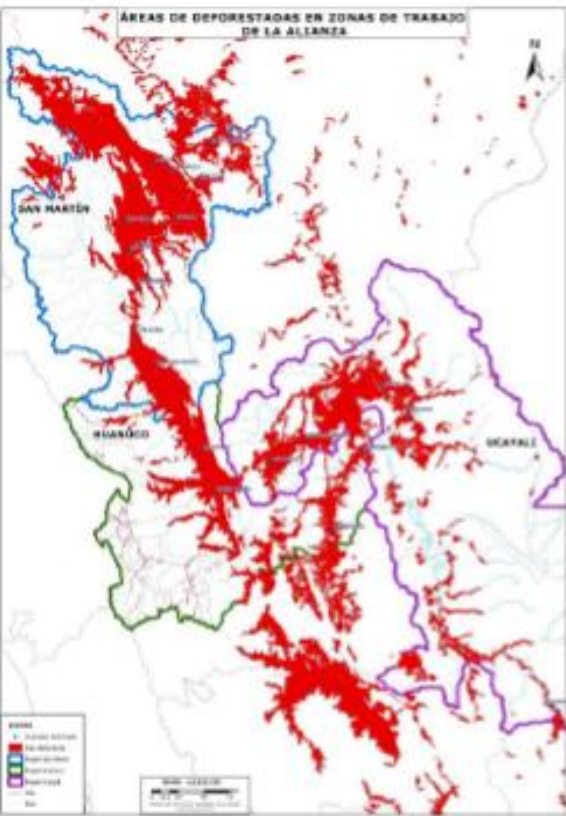
- 23,000 ha grafted = 9.7 million of rods/sticks
- San Martin: 1 MM trees of fine flavor but highly disperse
- Juanjuí: PCA planting material production center, 80,000 of fine flavor cocoa trees identified.
- Juanjuí-Curimaná: 780 km, logistic challenge.
- Supply and demand coordination.

Grafting: 20,021 ha  
with fine flavor  
cocoa varieties  
(12,810 producers).

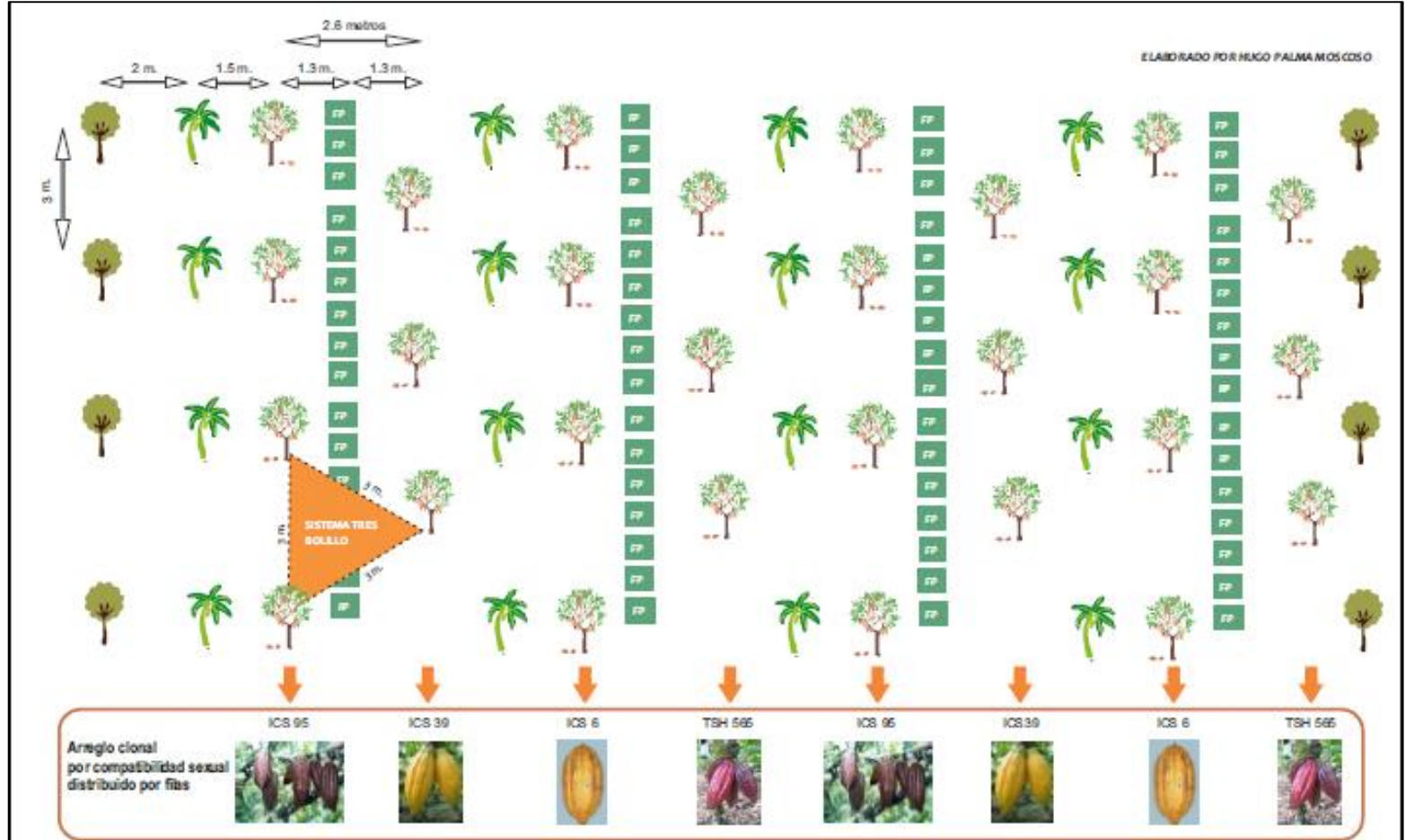




# 4.3. Facing the risk to promote deforestation: fine and flavor cacao with “zero” deforestation



### 4.3.The Peru Cacao Alliance Agroforestry System



### 4.3. CO<sub>2</sub> Capture Estimates for the Alliance Cacao Perú Agroforestry System



- The installation of 28,000 ha of cocoa under SAF will generate 5.1 million tons of CO<sub>2</sub>, and will capture 62.9 t of CO<sub>2</sub>.
- The Alliance's 28,000 ha capture 57.8 million net tons of CO<sub>2</sub> throughout the commercial life of cocoa (25 years).
- This means it will capture 82.5 tons of CO<sub>2</sub> per hectare per year.

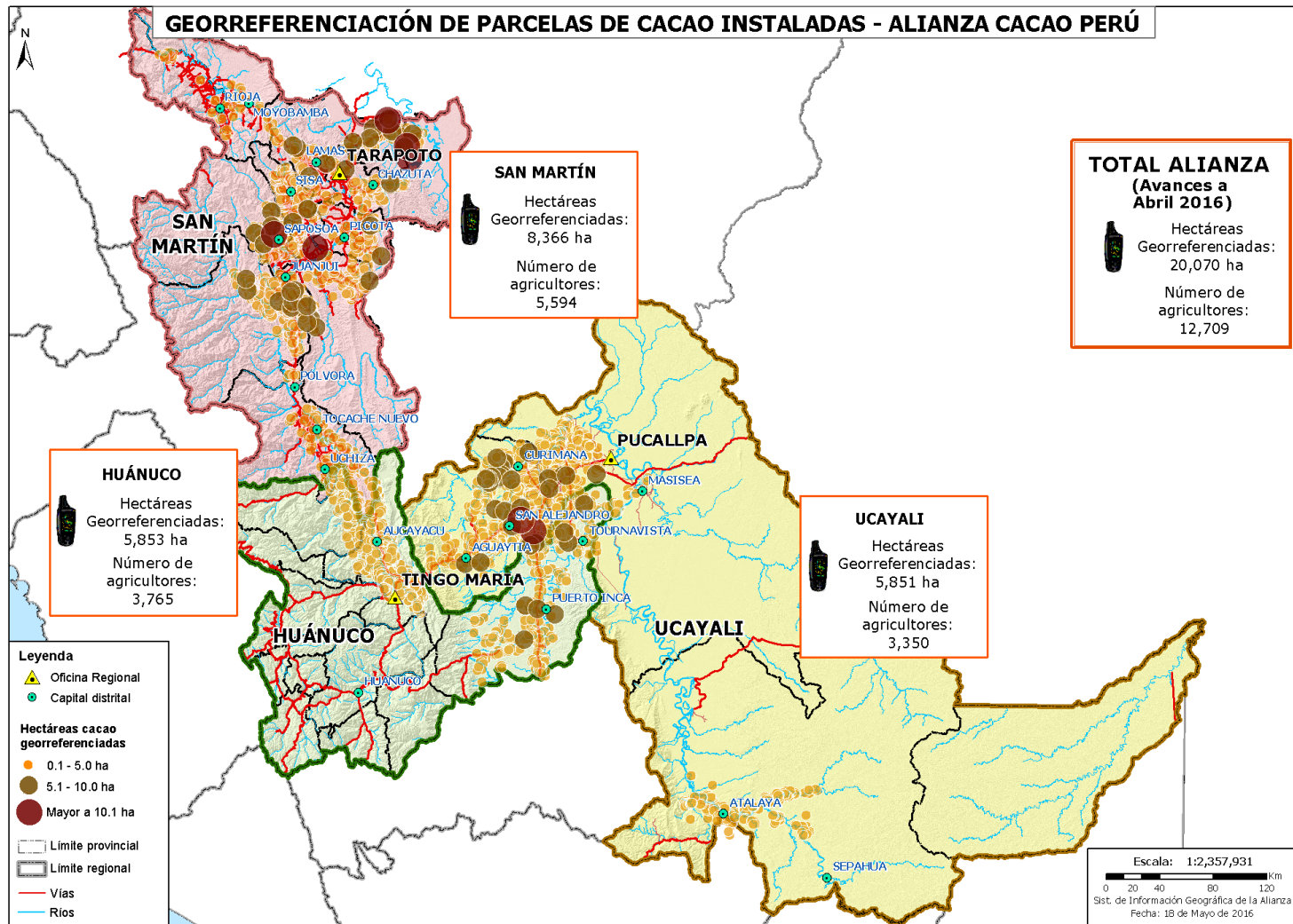


## 4.4. Reducing transaction costs: fine flavor cocoa georeferenciation and traceability

- The PCA Monitoring System: more than 17,000 small producers and 27,825 ha included.
- We conduct two surveys a year to audit the results.
- Georeference fine flavor cocoa for commercial purposes: the “birth certificate” of trazability.



Georeference and trazability: each hectare with fine and flavor cocoa grafted is geo referenced and include in M&E System. We have already 20,070 ha georeferenced with 12,709 producers of fine flavor cocoa.



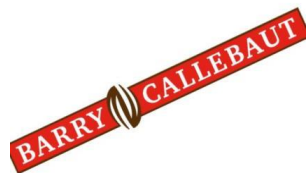
## 5. PCA Fine Flavor Cocoa Business Model: 5 Principles

- **Market concept:** differentiation; “market driven” = direct contact with chocolate makers.
- **“Biodiversity as competitive advantage”:** 7 varietal species of fine flavor cocoa in PCA model.
- **“High yields model”:** combine “sexual intercomptibility” among varietal species of fine flavor cocoa to reach high yields.
- **“Climate change resilient model”:** restoring the landscape incorporating timber species as a source of long term income and CO2 sequestration.
- **Small farmer associativity, georeference, trazability and private partnership:** to reduce transactions costs and to take advantage from the “private know how”.

## 6. Challenges

- **Post harvest:** is a key for success in fine flavor market.
- **Investment in infrastructure:** centralized post harvest facilities)
- **Invest on research to improve harvest process** for fine flavor cocoa.
- **Research about fine flavor varieties** in our countries to answer the key questions for farmers: **productivity and diseases.**
- **Governments:** to define strategic plan for fine flavor cocoa sector.
- **Partnership with private sector:** to be strengthened

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