



Alliance



# Cassava breeding program in the humid Caribbean region of Colombia

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October, 2022



# Breeding Trials in the Humid Caribbean



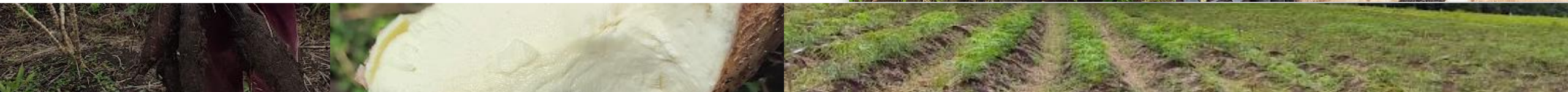
- There are 30 trials planted for 2022-2023.
- Distributed in 3 different locations (Sahagun, Momil and Cerete) in Sucre and Cordoba.
- The fields used belong to local farmers and strategic partners in the cassava crop.



# Breeding Trials in the Humid Caribbean

## Momil (Sucre):

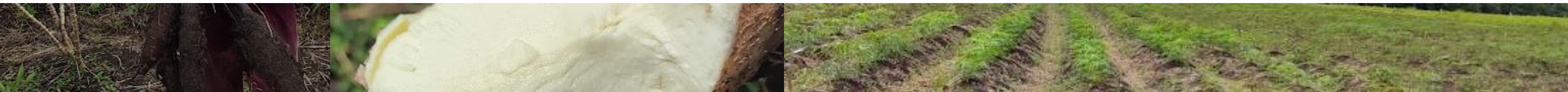
- High fertility lands with irregular topography.
- Principally Waxy (Blue) and Genetic (Orange) trials.
- **F1 trials are established here.**



# Breeding Trials in the Humid Caribbean

## Cerete (Cordoba) Agrosavia:

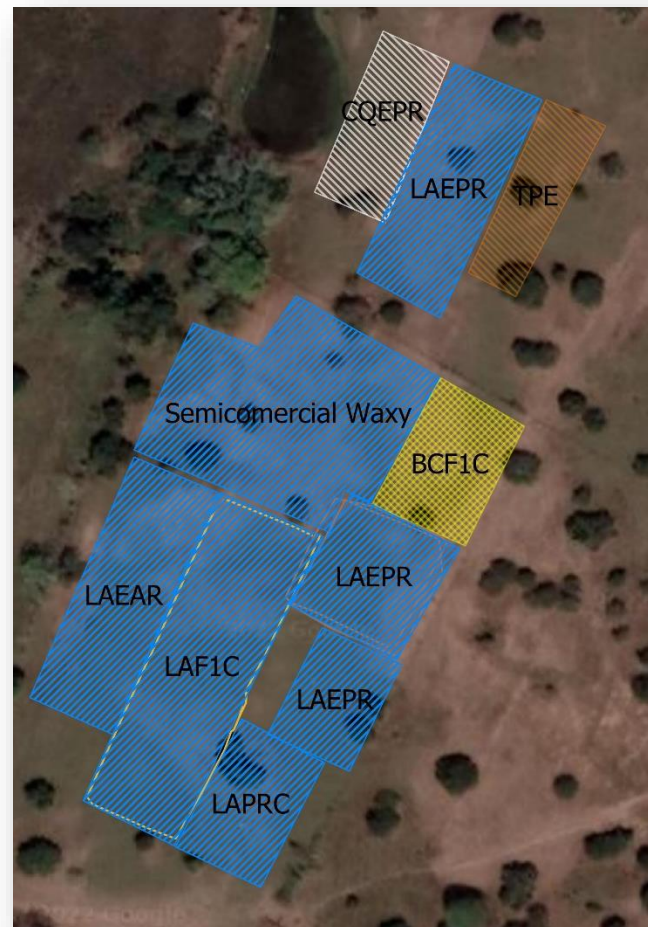
- Genetics (orange), Cooking Quality (red), Dry Matter (white), Beta-carotene (yellow).
- Flat topography, loamy fertility soils and low permeability.
- **Close to Agrosavia to work together.**



# Breeding Trials in the Humid Caribbean

## Sahagun (Cordoba) Agrosavia:

- Genetics (orange), Dry Matter (white), Beta-carotene (yellow), Waxy (Blue).
- Hillside lands, good fertility.
- Low cost and near to cassava industry farmers.



# Trial and Agronomic Management



Adequacy and preparation of Fields



Planting



Weed, pest and disease management

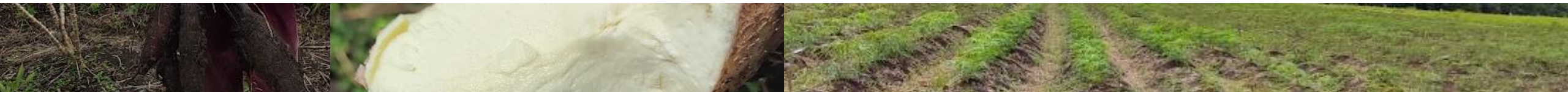


Irrigation and drainage management



Cosecha

Evaluations (data flow)



# Adequacy and preparation of Fields

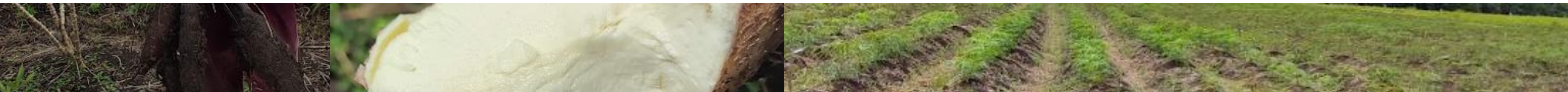


The preparations are contracted with external suppliers in the area.

Conditions similar to those of farmers.

Removal of trees, primary drainage and stocking for several years.

These are traditional preparations.

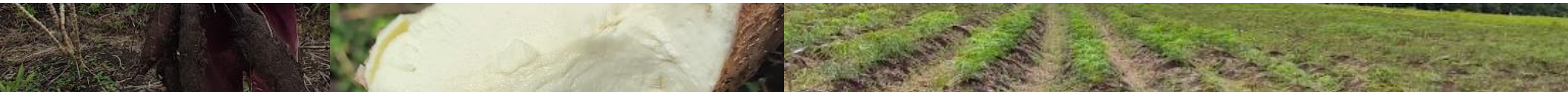


# Planting

On average, planting is done no more than a month before harvest and a few weeks from other locations.

Local personnel are used for the entire planting process.

Ensayo	Nombre	tipo de ensayo	Proposi	Localid	Fecha de siembra	Cosecha
GY202111	202111DTGN1_repe	GN1	DT	repe	5/5/2021	Monday, February 7, 2022
GY202172	202172BCPRC_repe	PRC	BC	repe	7/8/2021	Tuesday, May 3, 2022
GY202178	202178BCPRC_polo	PRC	BC	polo	7/16/2021	Thursday, May 5, 2022
GY202150	202150BCEPR_polo	EPR	BC	polo	8/3/2021	Thursday, May 5, 2022
GY202140	202140SGEPR_polo	EPR	SG	polo	8/17/2021	Monday, May 16, 2022
GY202139	202139SGEPR_momi	EPR	SG	momi	8/20/2021	Monday, May 16, 2022
GY202152	202152MDEPR_momi	EPR	MD	momi	8/20/2021	Wednesday, May 18, 2022
GY202182	202182DVF1C_momi	F1C	DV	momi	8/4/2021	Monday, May 30, 2022
GY202142	202142BCEAR_polo	EAR	BC	polo	8/9/2021	Monday, June 6, 2022
GY202153	202153BCEAR_repe	EAR	BC	repe	8/10/2021	Thursday, June 9, 2022
GY202171	202171DVPRC_repe	PRC	DV	repe	8/27/2021	Monday, June 13, 2022
GY202167	202167DVPRC_polo	PRC	DV	polo	8/26/2021	Thursday, June 16, 2022
GY202173	202173LAEPR_polo	EPR	LA	polo	7/28/2021	Wednesday, July 6, 2022
GY202190	202190LAEPR_momi	EPR	LA	momi	10/4/2021	Wednesday, July 6, 2022
GY202157	202157DVGXE_polo	GXE	DV	polo	8/9/2021	Monday, July 11, 2022
GY202156	202156DVGXE_repe	GXE	DV	repe	8/10/2021	Monday, July 11, 2022
GY202158	202158DVGXE_momi	GXE	DV	momi	8/21/2021	Monday, July 18, 2022
GY202159	202159CQCOB_polo	COB	CQ	polo	9/20/2021	Friday, July 22, 2022
GY202195	202195CQCOB_momi	COB	CQ	momi	9/29/2021	Friday, July 22, 2022
GY202174	202174LACOB_polo	COB	LA	polo	7/19/2021	





# Planting

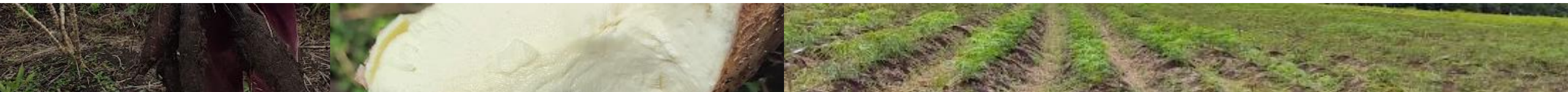
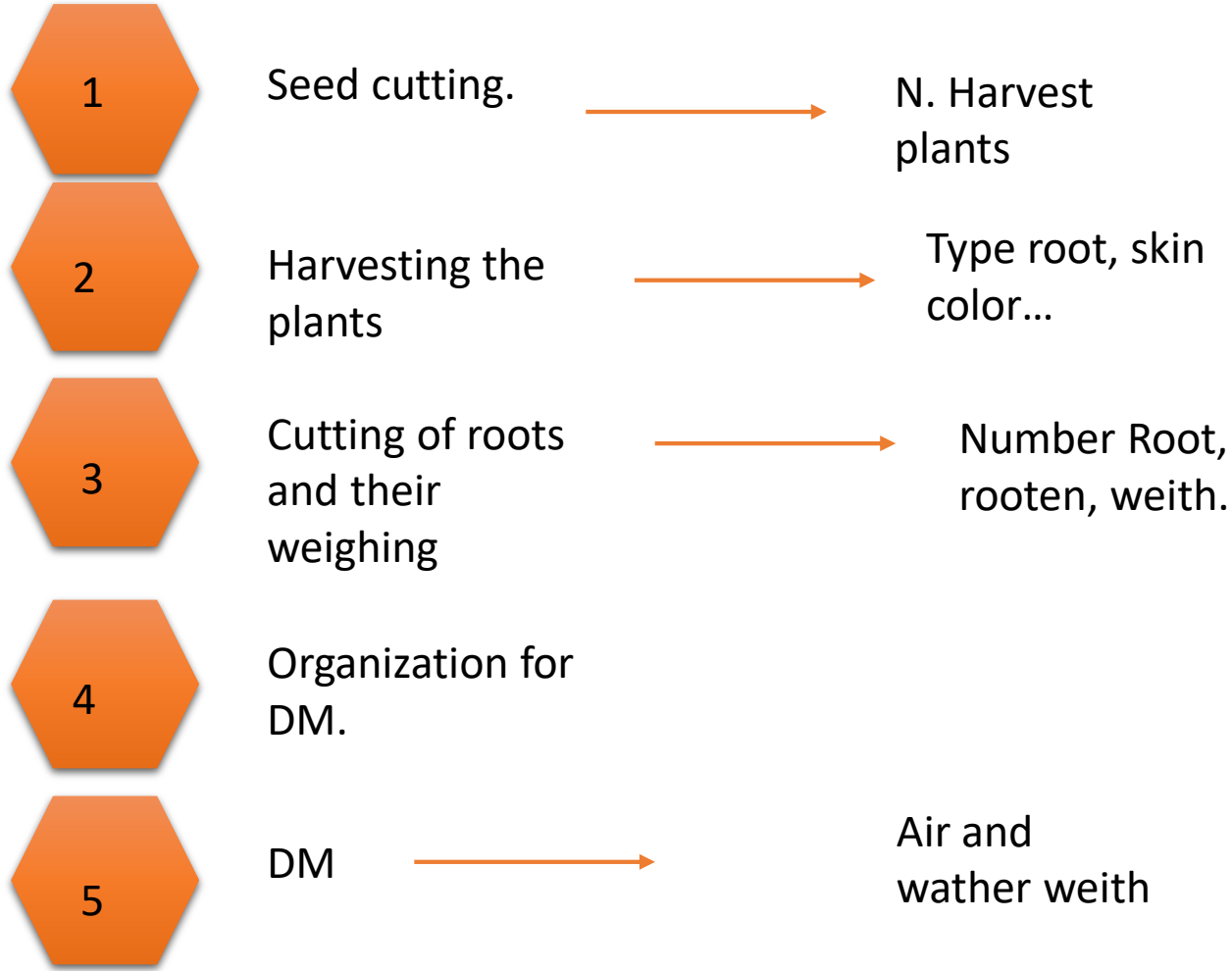


# Weed, pest and disease Control

- Priority management based on field observations.
- Differential management between genetic and breeding trials.
- Bad weeds are controlled chemically and manually.



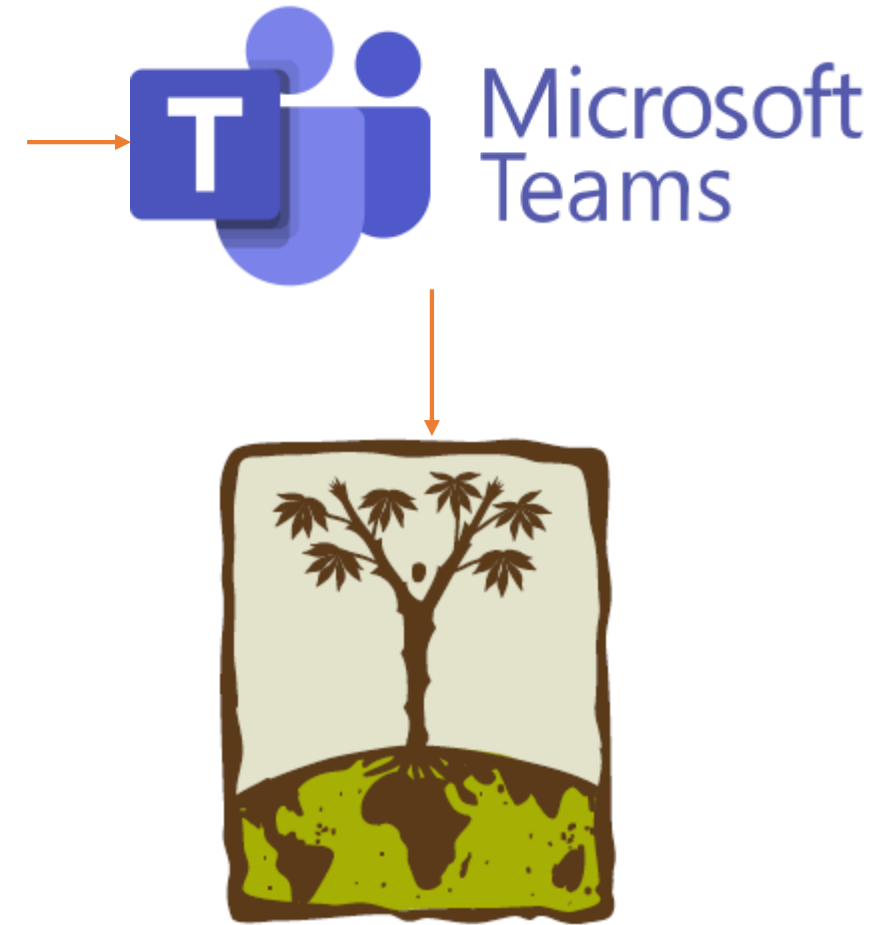
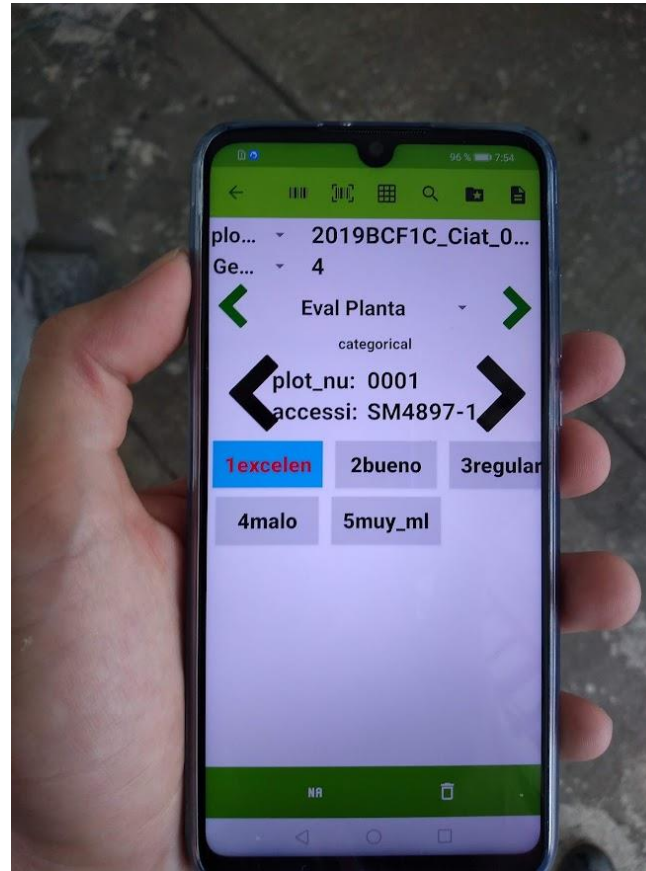
# Harvest and data collection



# Data Collection

Generally data is collected in 4 stages:

- Post-Planting (1-3 months): Germination, vigor, diseases and pests
- Trial development: Lodging.
- Pre-harvest (close to harvest): Plant architecture, aerial measurements.
- Harvest: Root traits, weight and dry matter.

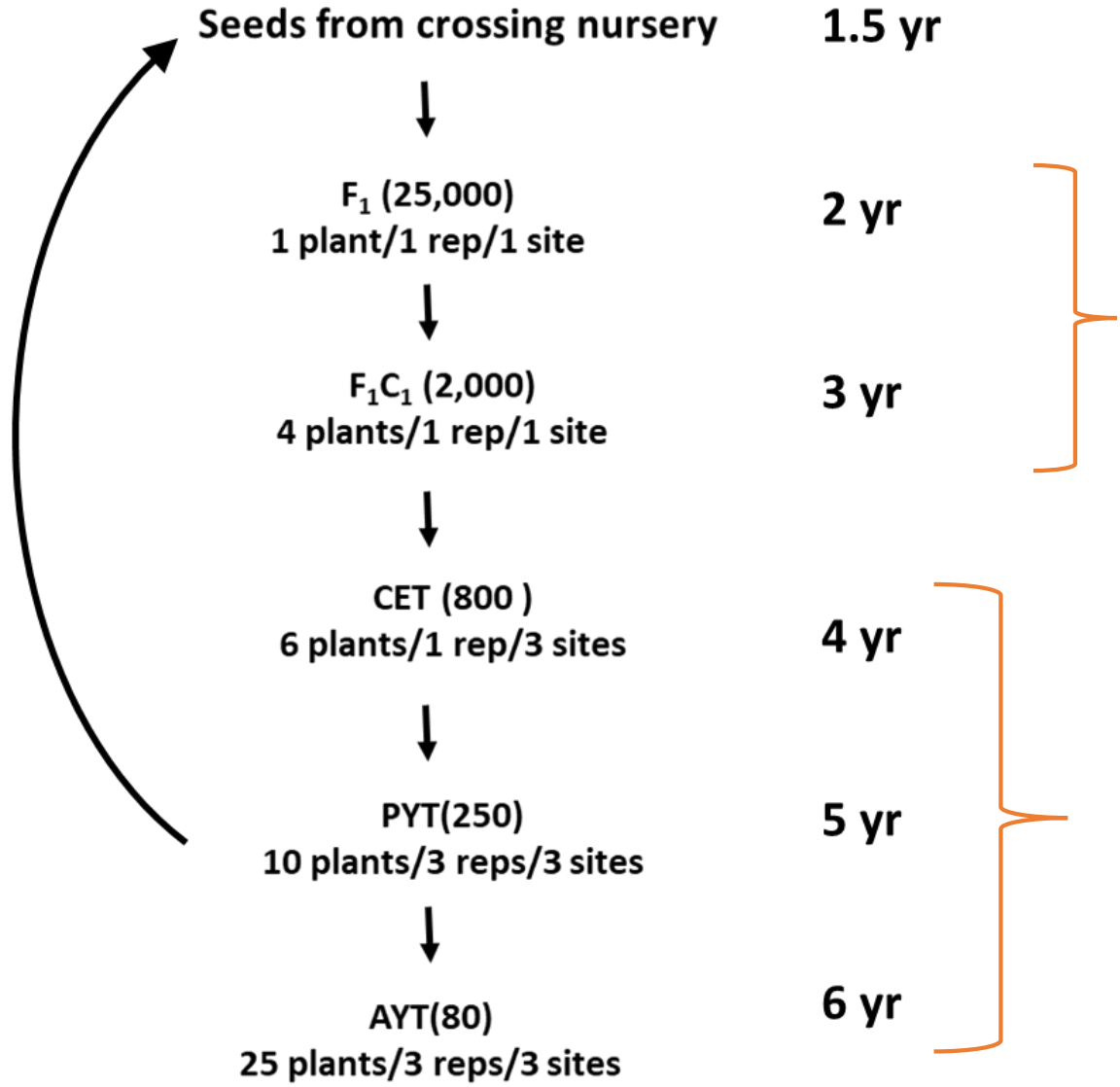






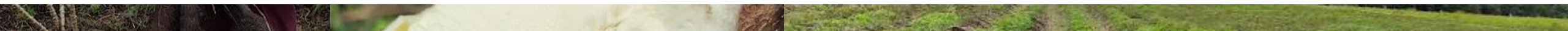


# Trial design



Siembra directa;  
Testigos en diagonal,  
aumentados,  
parcialmente  
replicados o testigos  
continuos

Row and Column  
and RCBD



	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15	V16	V17	V18	V19	V20	V21	V22
23	180	468	423	496	200	157	240	461	134	533	87	498	155	2	182	293	389	203	211	480	499	135
22	141	88	408	230	197	26	148	403	3	507	504	256	241	302	400	372	343	485	27	541	142	307
21	124	227	30	3	191	137	244	527	107	308	255	264	49	132	41	74	38	4	548	222	296	411
20	225	172	288	497	106	67	452	512	232	213	25	162	5	63	121	174	257	114	379	251	492	460
19	160	204	459	20	410	457	321	1	392	390	218	209	143	117	525	285	440	361	489	161	319	3
18	17	238	4	40	311	112	71	190	70	131	314	189	289	432	331	220	6	437	73	287	126	116
17	543	223	502	531	163	442	360	85	144	374	401	3	58	159	348	516	291	101	395	326	263	278
16	145	273	295	455	78	347	2	199	474	14	366	353	166	253	332	399	178	530	309	550	5	150
15	358	1	478	282	271	298	250	346	322	363	515	351	475	55	350	1	254	511	340	43	344	339
14	115	280	268	194	228	245	226	438	147	113	6	272	53	246	384	334	48	183	378	354	404	19
13	503	221	62	54	72	4	555	66	95	215	538	299	193	125	36	69	184	261	532	6	181	444
12	2	558	89	12	168	406	469	513	118	315	61	488	341	177	1	385	320	91	10	435	94	51
11	105	29	152	318	554	52	186	151	42	5	242	415	426	39	179	500	80	281	557	505	549	473
10	529	284	520	270	1	92	68	277	279	409	493	405	535	11	544	212	303	536	6	122	449	146
9	100	450	304	552	506	551	481	553	205	188	464	16	539	6	276	420	436	301	446	330	349	367
8	86	522	428	462	169	453	45	81	2	267	236	206	274	173	509	306	47	425	139	477	130	252
7	490	35	537	3	337	65	24	138	84	176	133	210	300	233	258	338	431	2	412	368	316	327
6	387	312	534	294	175	64	393	59	328	508	495	297	3	433	546	216	470	259	310	416	79	547
5	380	355	103	356	120	170	28	2	317	110	128	373	23	248	290	472	313	286	97	418	427	4
4	46	519	5	364	540	235	517	167	219	22	237	9	439	265	430	207	4	196	362	414	239	526
3	357	243	229	82	447	441	429	154	451	44	108	4	336	266	417	510	545	456	424	224	153	491
2	7	98	454	487	467	407	2	494	484	136	13	201	149	102	31	396	359	371				
1	528	5	275	195	60	422	434	394	365	15	83	398	556	501	325	1	90	37				





# Teamwork

Our team on the north coast can be divided into:

- **CIAT work team** (researchers, data analysts, Breeder, Economic team).
- **Farmers and owners lands.**
- **Field team.**

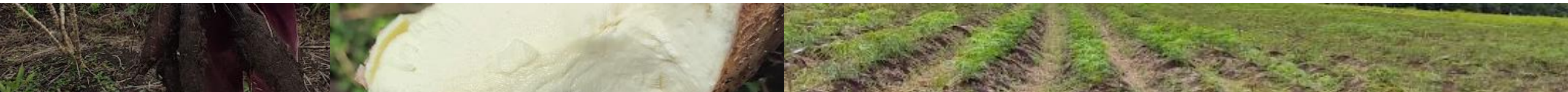
It is a harmonious, sincere and proactive communication.

**We all work together for the progress of cassava.**



# CIAT work team

- ❖ Vital starting point in the activities.
- ❖ Defined roles and valuable experience.
- ❖ Fluid and constant communication.
- ❖ Resilient and adaptable team



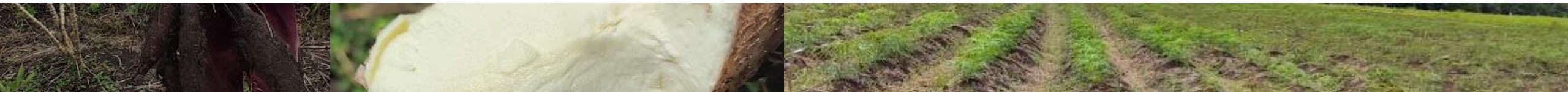
# Farmers

**They are a crucial source of expertise for us!**

Real insights into your needs and challenges.

Potential trial establishment partners.

We work in constant contact and to strengthen and expand our network with farmers, industries and cassava associates.



# Field team

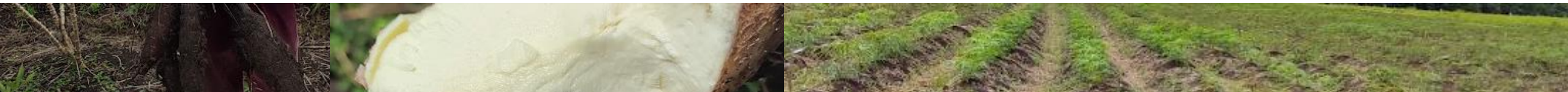
The goal is to maintain a united and trained group.

Limitations to understand trials.

Total compromise and proactivity.

Vital experience in cassava and the regions where we work.

**They are the most important people in the breeding program in the Humid Caribbean.**



# Fields for long terms

We invest a significant effort in the search for new land and its adaptation.

It directly affects our planting and harvesting calendar.

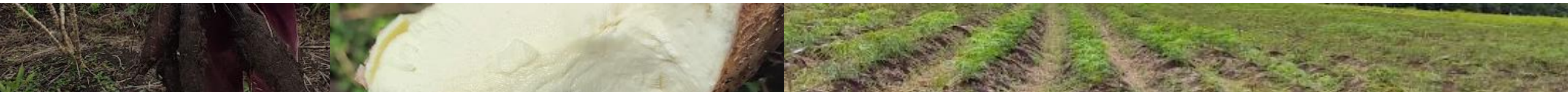
A minimum of 1.5 is required for a planting and harvesting season.

There must be a strong interest of the owners or partners in the cultivation of cassava.

They must be sincere, proactive and friendly people.



5 years  
is our  
goal



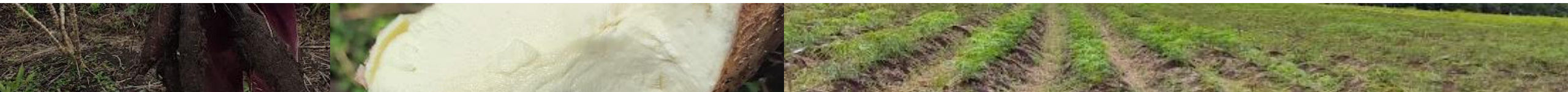
# Fields for long terms

CIAT



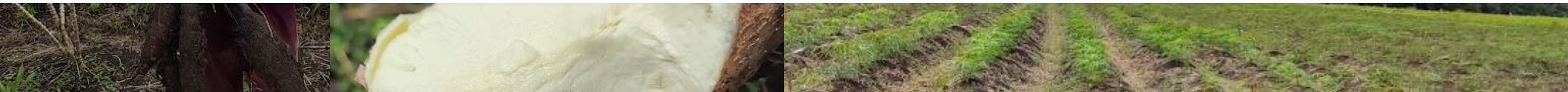
with  
(F1).  
e land.

Owners or  
Institutions



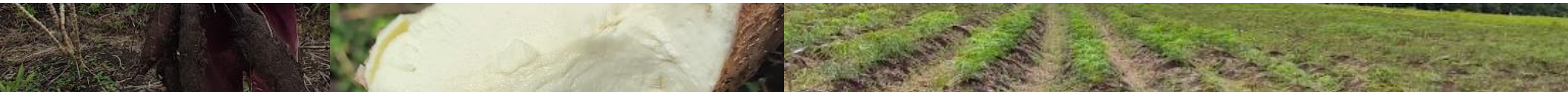
# Challenges of working on the north coast

- **Environmental conditions.**
- **Technician machinery.**
- **Trials with poor germination.**
- **Regional security.**
- **Obtaining land to set up trials.**
- **Vehicle access and routes.**



# Improvements required in the sector

- Increase productivity.
- Tenification of cassava production (mixes material, bad weed and pest).
- Tolerance to diseases.
- Access to special markets.
- Increased competitiveness.
- Associativity



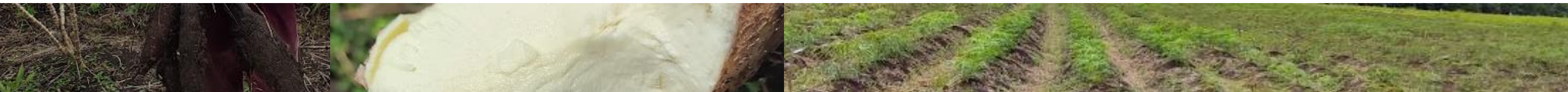


# Improvements for 2022 in Humid

Increased the number of locations with respect to 2021.

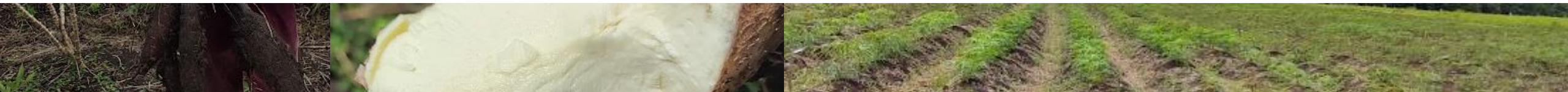
Improved space utilization for the coming year.

New relationships were created with industry, academia and farmers. Implementation of new technologies.



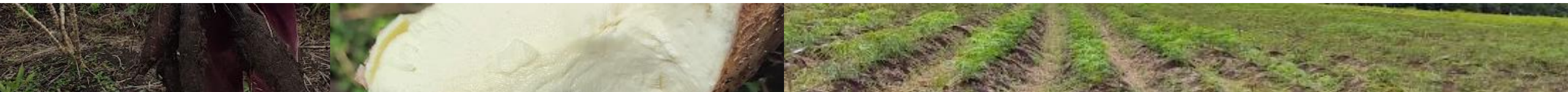
# New personal learning in 2022

- Management of several locations at the same time.
- Planning.
- Contact with the sector.
- Relations with strategic allies.
- Cassava equipment and data analysis.
- knowledge in breeding and Materials



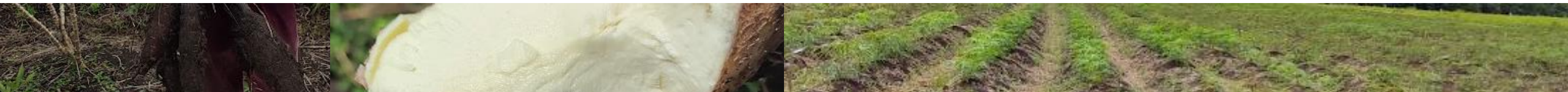
# personal learning for 2023

- Academic Growth.
- Growth in Project Management.
- Improving data management and analysis.
- Breeding skills
- **Building a solid and valuable network of contacts in the cultivation of cassava as my former advisor on the coast.**



# Personal learning for 2023

- Better use of space
- Continue to decrease the number and size of trials
- Next step for lead workers at each location.



# Personal learning for 2023

- Better use of space
- Continue to decrease the number and size of trials
- Next step for lead workers at each location.

Thank you  
very much!

