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Tecnologías de mapas de productividad

interpretación y aplicación practica

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Ingenio Providencia S.A

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USO DE TECNOLOGÍAS DE AGRICULTURA DE PRECISIÓN

SURVEY INSTRUMENT

CropLife

20th Precision Agriculture Services Dealership Survey

PURDUE AGRICULTURE

IRB APPROVAL 1702018754

Dear agricultural retailer,

The CropLife/Purdue survey is the longest-running, most widely used survey that chronicles the development and adoption of precision agriculture! We depend on your continued input. Please complete by March 27, 2020. Two ways to participate:

1. **Fill out and return in postage paid envelope, or Fax it back: 440-942-0662.**
2. **Or, complete the survey online at https://2020precisionsurvey.questionpro.com Thank you for your participation!**

Bruce Erickson & Jess Lowenberg-DeBoer *Purdue University* | Paul Schrimpf *CropLife/Meister Media*

1. Which best describes your business? *[mark only one]*

[ ] Agricultural retail input supplier
[ ] Farm equipment dealer
[ ] Agricultural consultant
[ ] Other: *[please specify]* _____

2. If you answered agricultural retail input supplier above. Are you a: *[please mark only one]*

[ ] Independent dealership
[ ] Cooperative
[ ] Part of a national or regional chain (not a cooperative)
[ ] Other: *[please specify]* _____

3. Your primary responsibility: *[please mark only one]*

[ ] Owner/general manager/location manager
[ ] Departmental manager
[ ] Precision manager
[ ] Application manager
[ ] Technical consultant/agronomist
[ ] Sales/sales management
[ ] Other: *[please specify]* _____

4. How many total retail outlets does your company own or manage? *[please mark only one]*

[ ] None [ ] 1 [ ] 2-5 [ ] 6-15

7. In which of the following ways does your dealership use precision technology? *[mark all that apply]*

[ ] Any precision agronomic services for customers
[ ] GPS guidance systems with manual control (light bar)
[ ] GPS guidance systems with automatic control (autosteer)
[ ] Auto sprayer boom section or nozzle control
[ ] Sprayer turn compensation
[ ] Y drops on fertilizer applicators
[ ] Satellite/aerial imagery for internal dealership purposes
[ ] UAV or drone for internal dealership purposes
[ ] Soil electrical conductivity (EC) mapping
[ ] Chlorophyll/greenness sensors mounted on a pickup, applicator or tractor (CropSpec, GreenSeeker, OptRx etc.)
[ ] Other soil sensors for mapping, mounted on a pickup, applicator or tractor (example: pH sensor)
[ ] Field mapping with GIS to document work for billing/insurance/legal purposes
[ ] Telematics to exchange information among applicators or to/from office locations
[ ] GPS fleet management for vehicle logistics, tracking locations of vehicles, and guiding vehicles to the next site
[ ] Smart scouting using an app on a mobile device to record field situations and locations
[ ] Do not use precision technology

8. How do you help manage the farm-level data (i.e., yield

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OFERTA DE TECNOLOGIAS A LO LARGO DEL TIEMPO

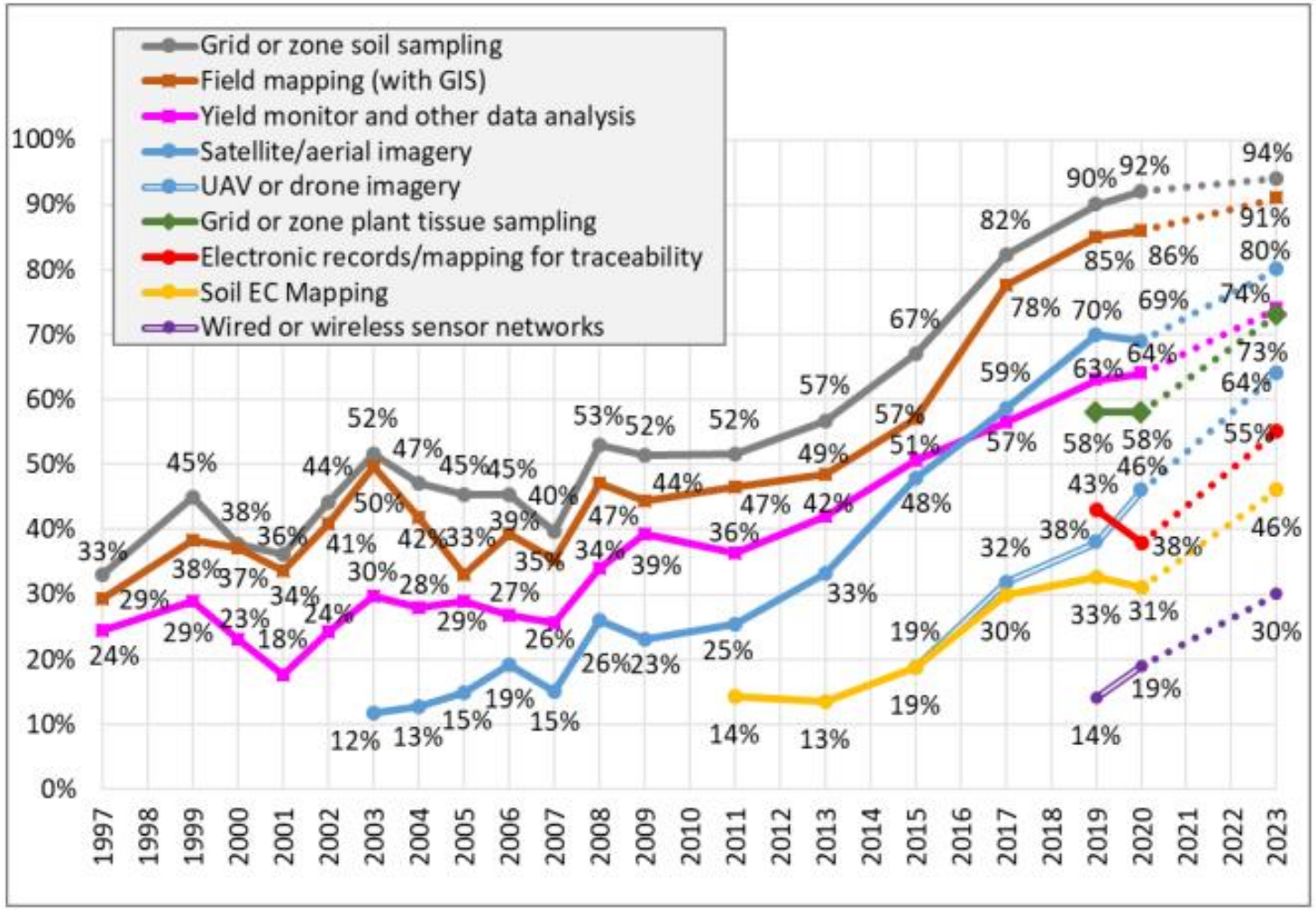

Figure 8, Q10: Dealer offerings of precision services over time, sensing-related technologies. 2023 are projections.

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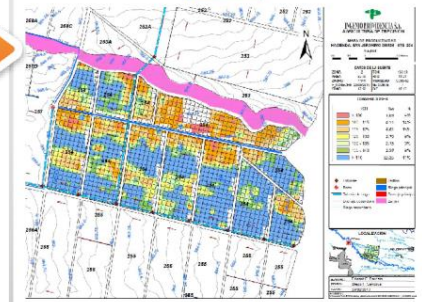
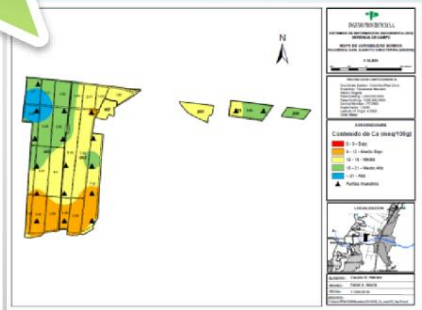
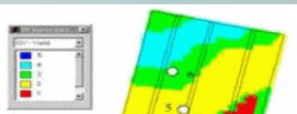
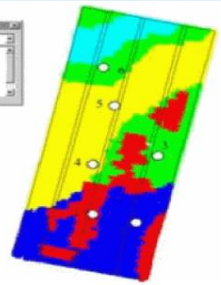
Ciclo de implementación de la agricultura de precisión

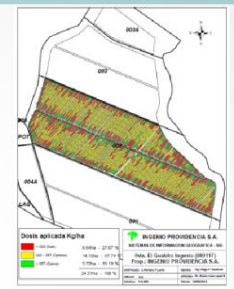
1.

Mapa de productividad

2.

Análisis de información y visita a campo

3.
Planes de manejo


AP + Tradicional

4.


Ejecución y registro de labores

5.

Verificación y visita a campo (Departamento de Calidad)

6.

Seguimiento en campo (ID)

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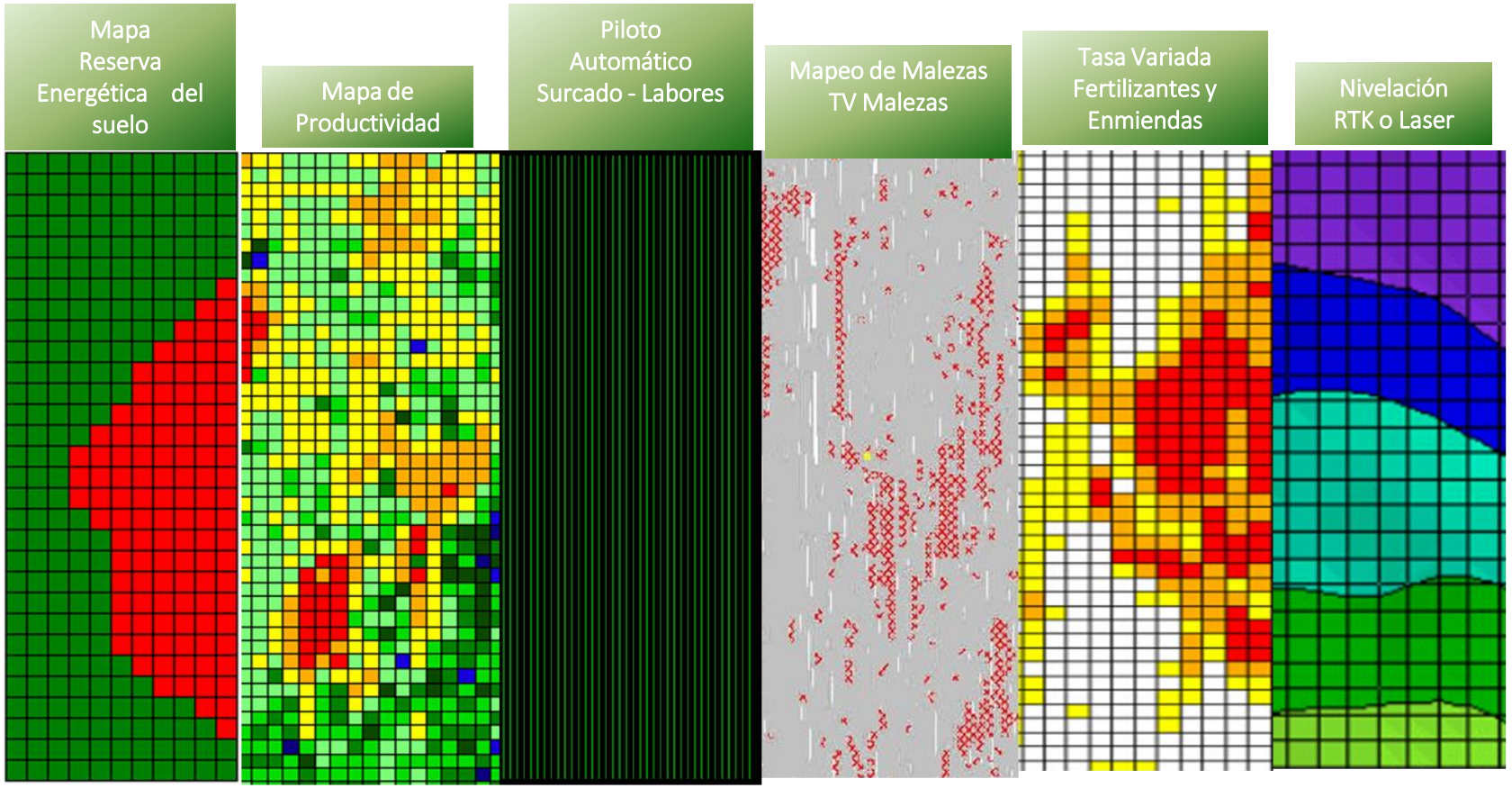
IMPACTO DE TECNOLOGÍAS DE AGRICULTURA DE PRECISIÓN



FUENTE: COX, 2006. Davco. Complementado por AGROAP - ILAMA.

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TECNOLOGÍAS DE MAPAS DE PRODUCTIVIDAD Y SU EVOLUCIÓN

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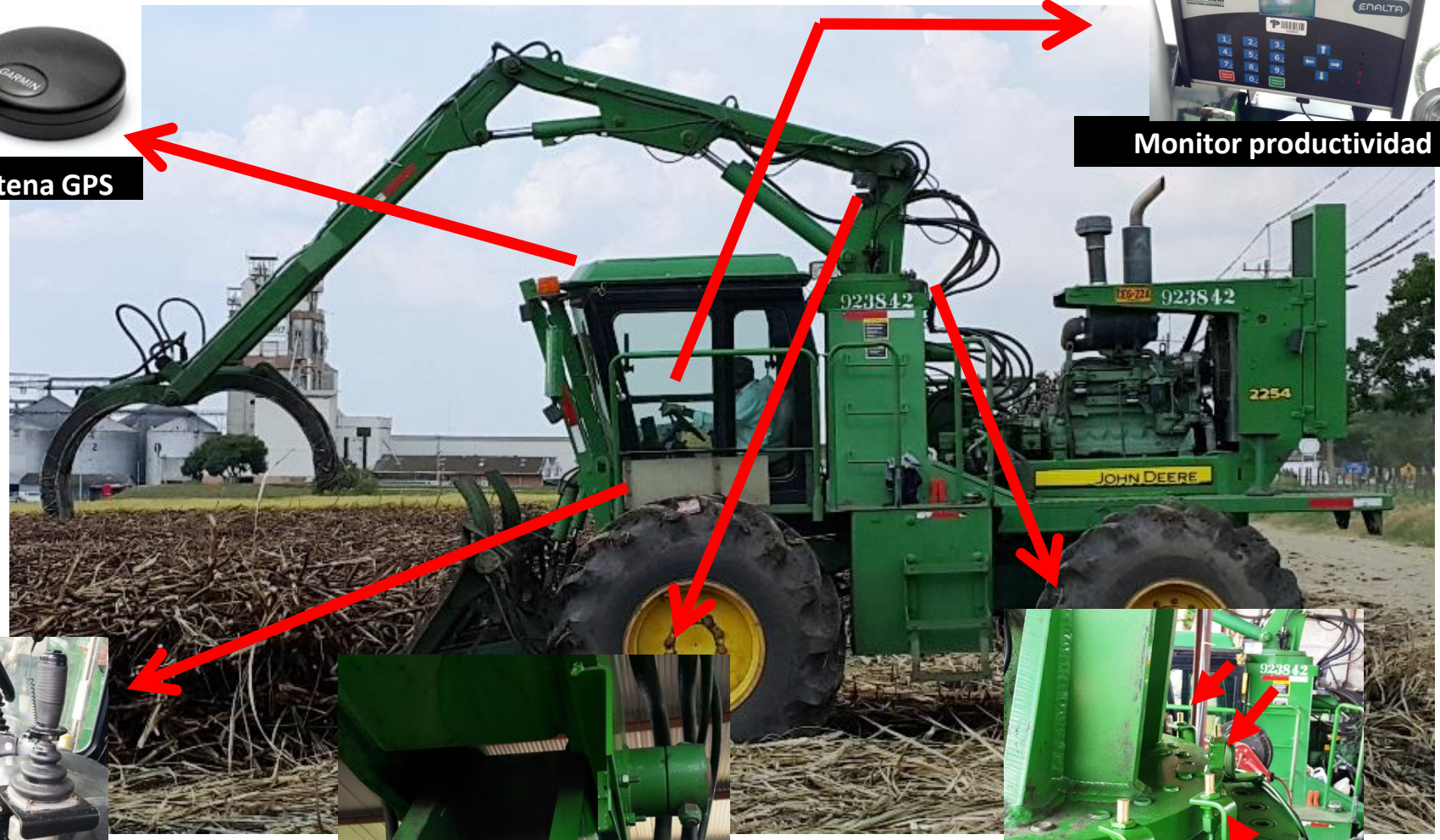
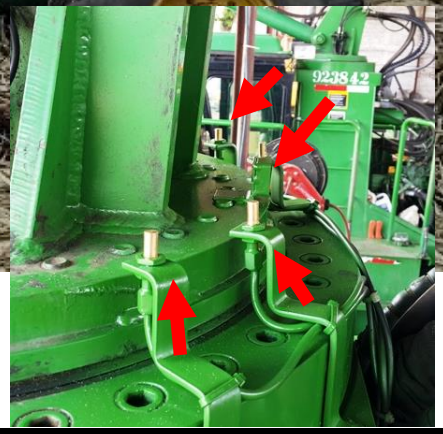
Antena GPS

Monitor productividad



Sensor Presión

Sensor elevación



Sensores de rotación de la pluma

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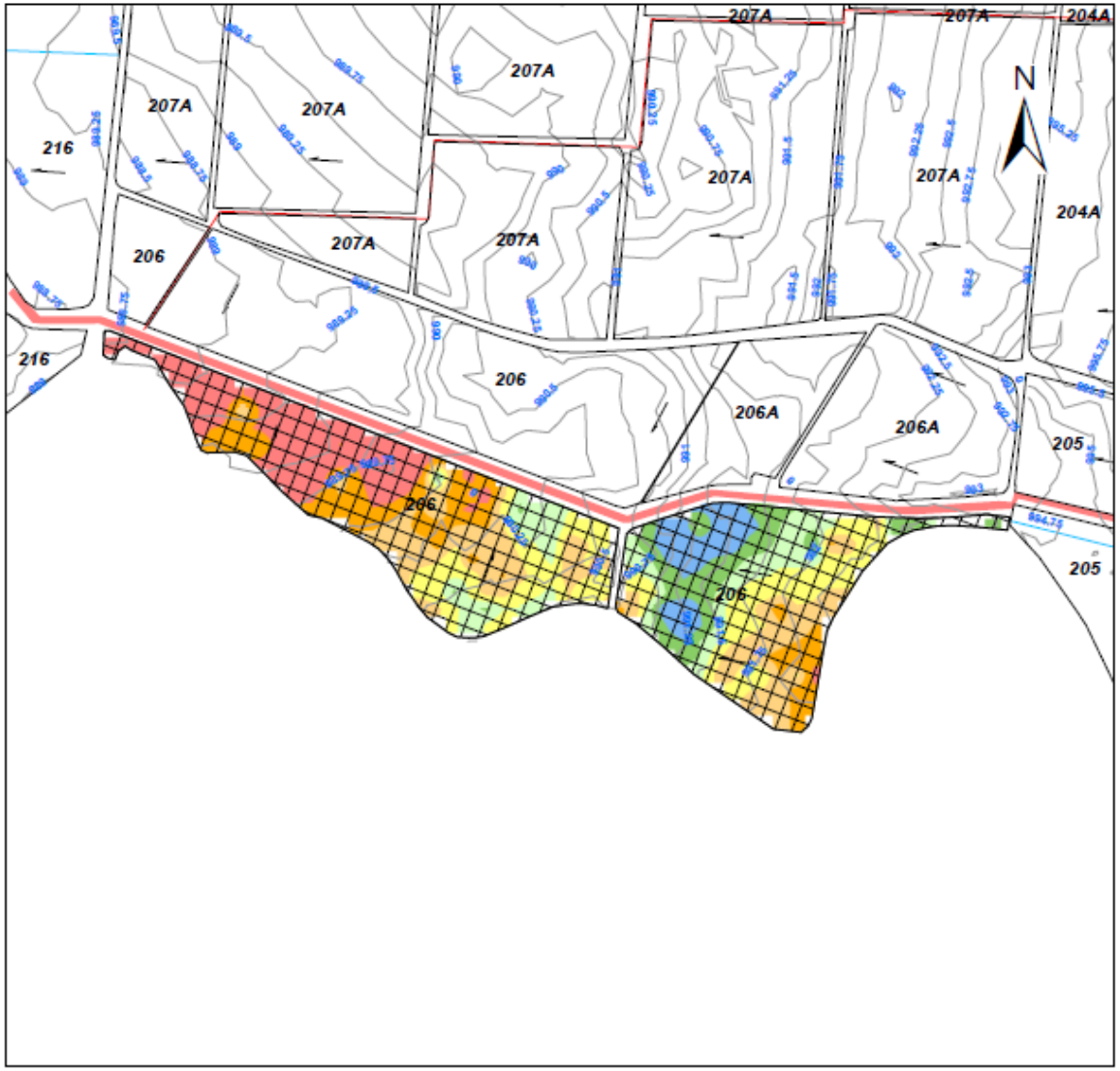
MAPA DE PRODUCTIVIDAD



INGENIO PROVIDENCIA S.A.
AGRICULTURA DE PRECISIÓN

MAPA DE PRODUCTIVIDAD
HACIENDA: EL ALIZAL 080105 - STE: 208

1:5,000

DATOS DE LA SUERTE			
ZONA	2	TCH	151.60
AREA	12.40	RTO	10.38
ZAGRO	18H1	VARIEDAD	CC85-92
F_COSECHA	02/03/2017	No.CORTE	10
EDAD	12.09	D.E.	10.15

CONVENCIONES

TCH	ha	%
< 140	2.38	19%
140 - 145	1.87	15%
145 - 150	2.35	19%
150 - 155	2.20	18%
155 - 160	1.72	14%
160 - 165	0.99	8%
> 165	0.88	7%

- Riego principal
- Corona riego
- Drenaje principal
- Zanjon
- Pozo
- Hidrante
- Surco
- Tuberia riego
- Riego secundario
- Drenaje secundario

LOCALIZACION

ELABORO :	Edward F. Bautista
REVISO :	Diego F. Sandoval
FECHA :	04/05/2017
ARCHIVO :	

OBSERVACIONES

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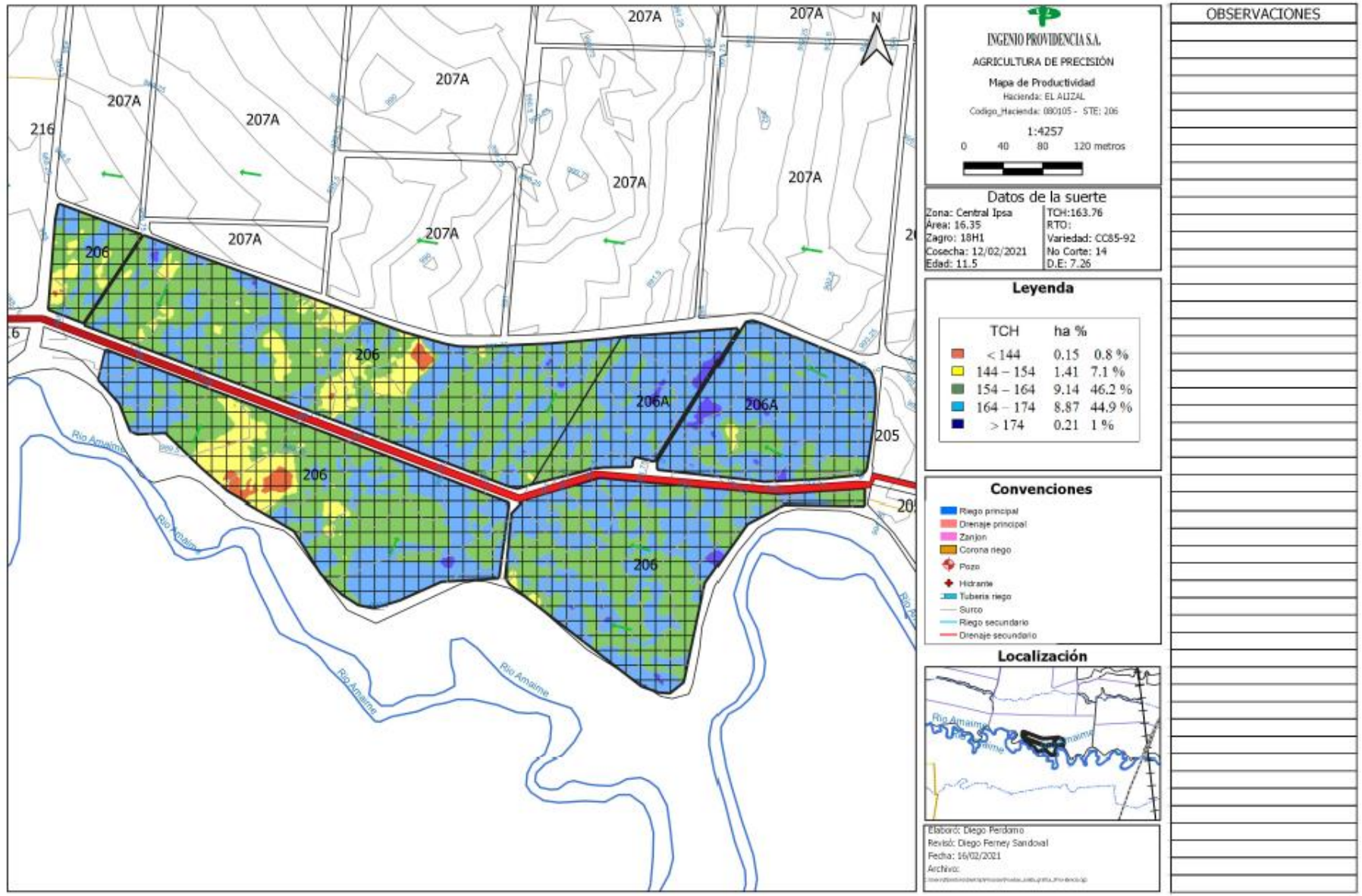
MAPA DE PRODUCTIVIDAD



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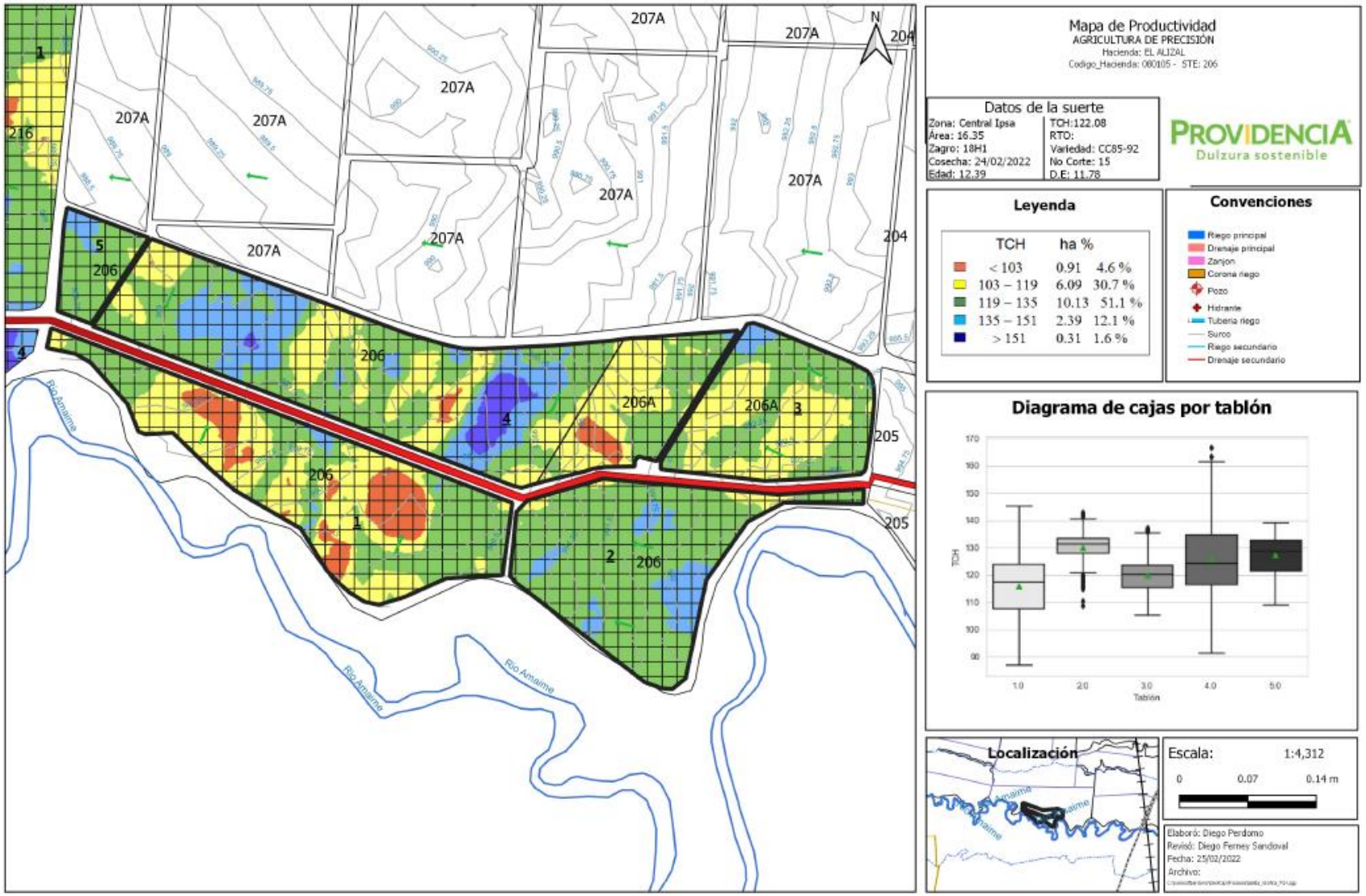
MAPA DE PRODUCTIVIDAD



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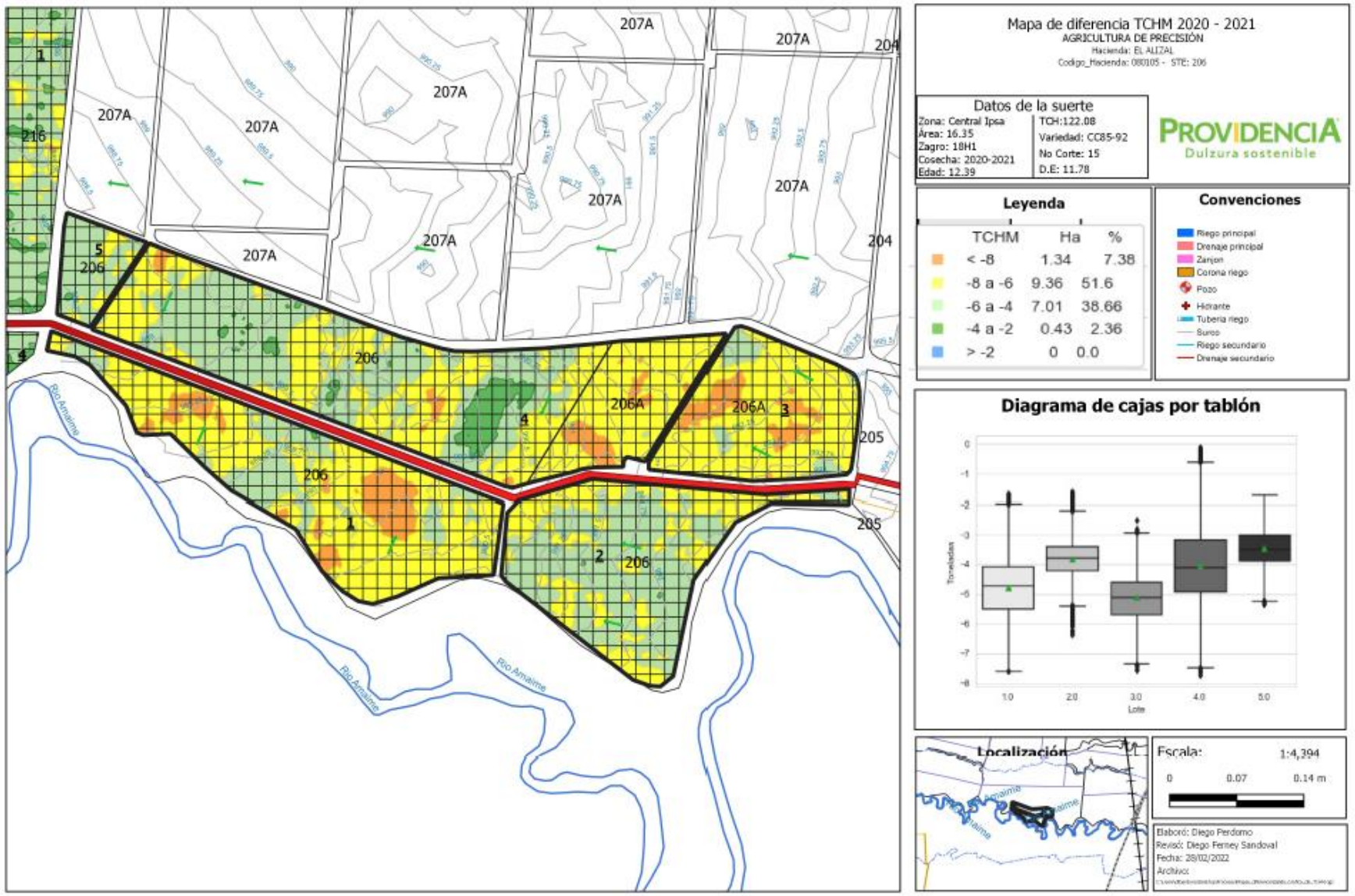
MAPA DE TCHM A PARTIR DE MAPA DE PRODUCTIVIDAD



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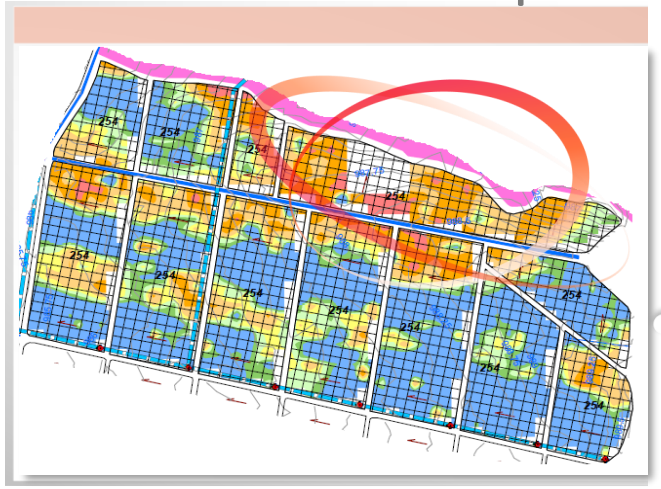
VALIDACIÓN CRUZADA DE TECNOLOGÍAS

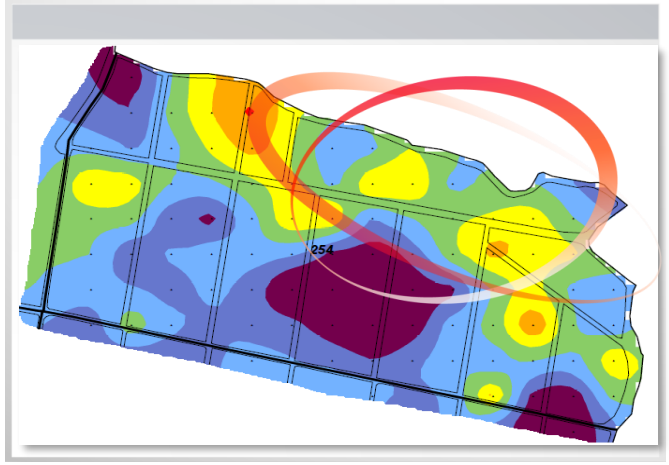
Mapa de Productividad



CONVENCIONES

TCH	ha	%
< 100	1.09	4%
100 - 115	4.11	14%
115 - 125	4.61	15%
125 - 130	2.70	9%
130 - 135	2.75	9%
135 - 140	2.57	9%
> 140	12.25	41%

Mapa de Arenas



CONVENCIONES

A %

- 0 -25 - L
- 25 - 30 - FL
- 30 - 35 - FL
- 35 - 40 - FL
- 40 - 45 - FL
- 45 - 50 - FL
- > 50 - FA

Puntos muestreo

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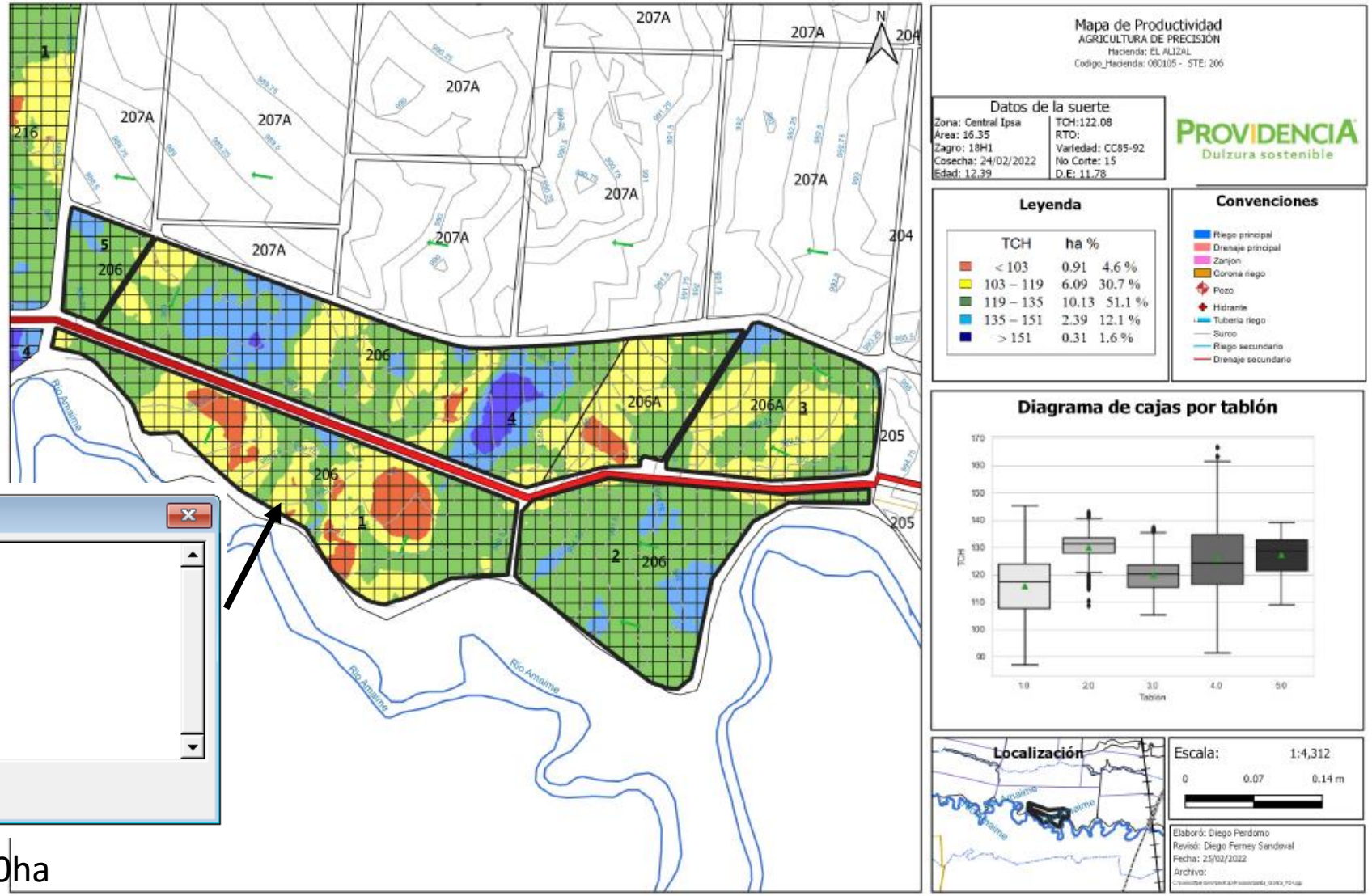
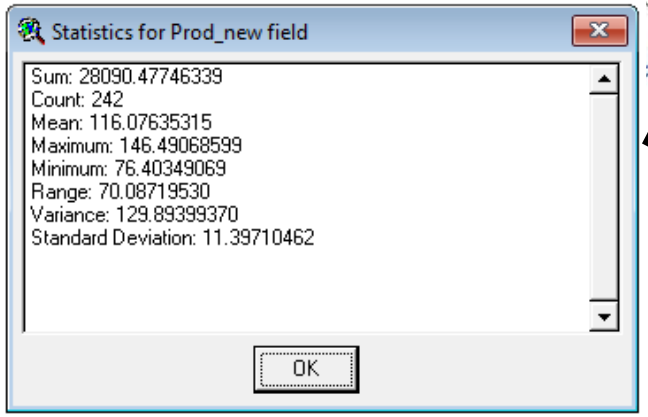
MAPAS DE PRODUCTIVIDAD EN RENOVACIÓN





Área: 4.30ha

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MAPAS DE PRODUCTIVIDAD EN RENOVACIÓN

Tablon	Área	Min	Max	Promedio	D.S
1	4,30	76,40	146,49	116,07	11,39
2	3,56	102,14	164,70	130,37	7,25
3	2,45	96,70	145,29	119,14	7,25
4	7,13	72,34	167,06	125,59	13,68
5	0,65	116,00	153,14	131,76	7,76

Renovación total	
Costo/ha	$ 4.821.184,00
Total	$ 87.215.218,56

Renovación parcial

Tablon	Área	Costo Renovación
1	4,30	$ 20.731.091,20
3	2,45	$ 11.811.900,80
	6,75	$ 32.542.992,00

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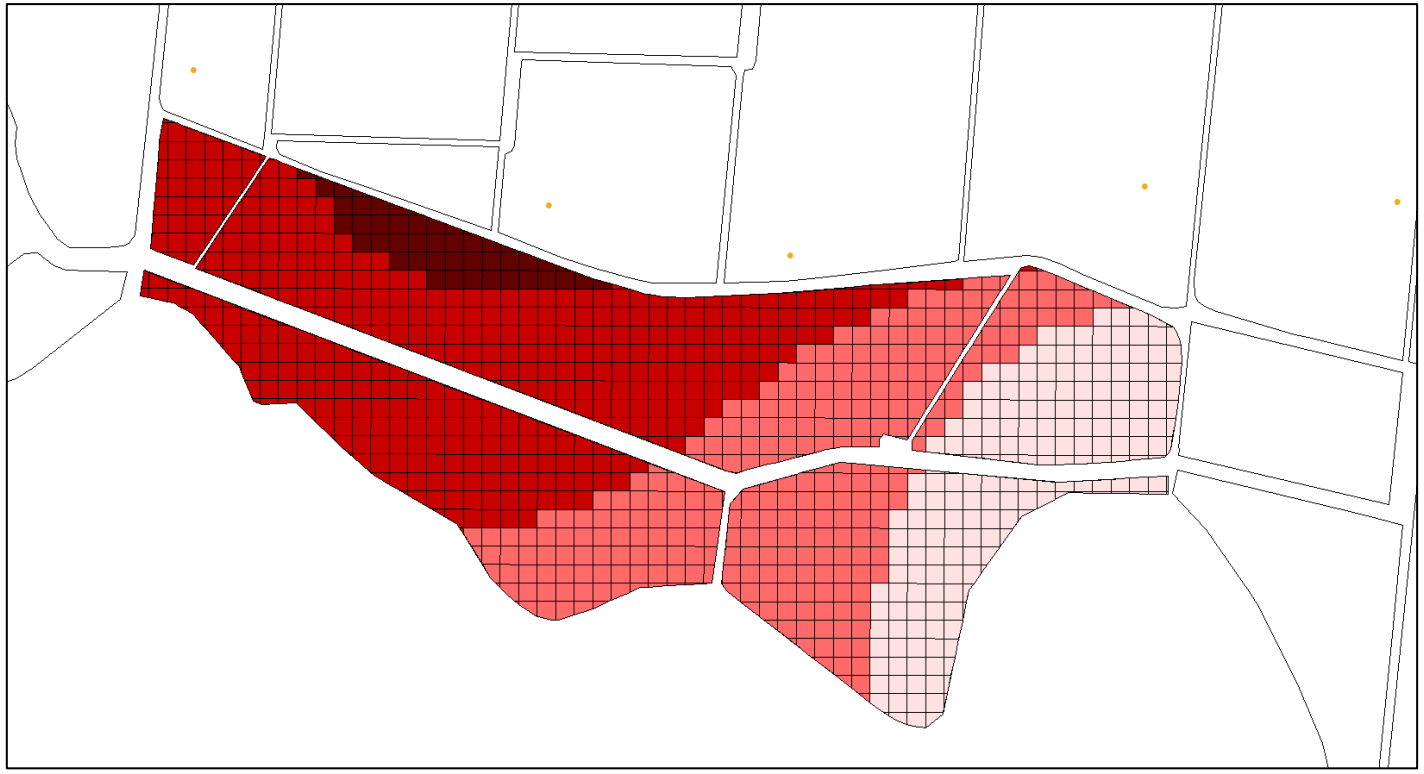
MAPAS DE PRODUCTIVIDAD EN FERTILIZACIÓN T.V

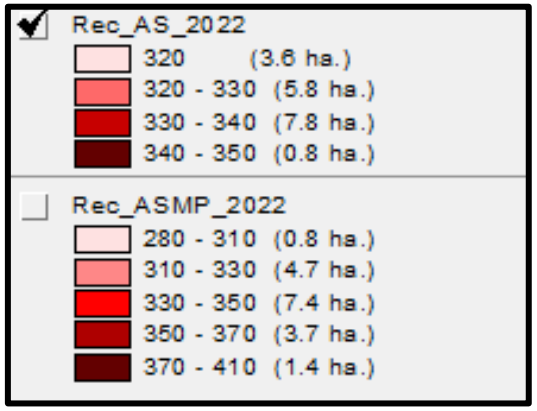
El_Alizal-19_080105_providencia_Rec: Bloc de notas

Archivo Edición Formato Ver Ayuda

```
Field Name: El_Alizal; 19
Hectares: 400.30
Farm: 080105
Client: providencia

Equation:                          Provi_n_7
Product:                           Urea
Min. Rate:                         320.0 Kg./ha.
Max. Rate:                         350.0 Kg./ha.
Avg. Rate:                         333.3 Kg./ha.
Total Urea:                        6032.57 Kg.
  Total N (46%):                     2775.0 Kg.
Product Price per kilogram:                $0.00
Product Cost:                      $0.00
Number of Hectares to be Applied:          18.10 ha.
Per Hectare Application Charge:    $4.50
Anticipated Application Charge:    $81.45
Total Cost:                        $81.45
Cost per Applied Hectare:                  $4.50
Total Hectare Cost:                $0.20
```





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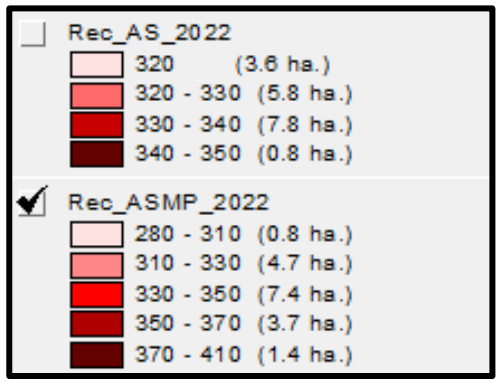
MAPAS DE PRODUCTIVIDAD EN FERTILIZACIÓN T.V

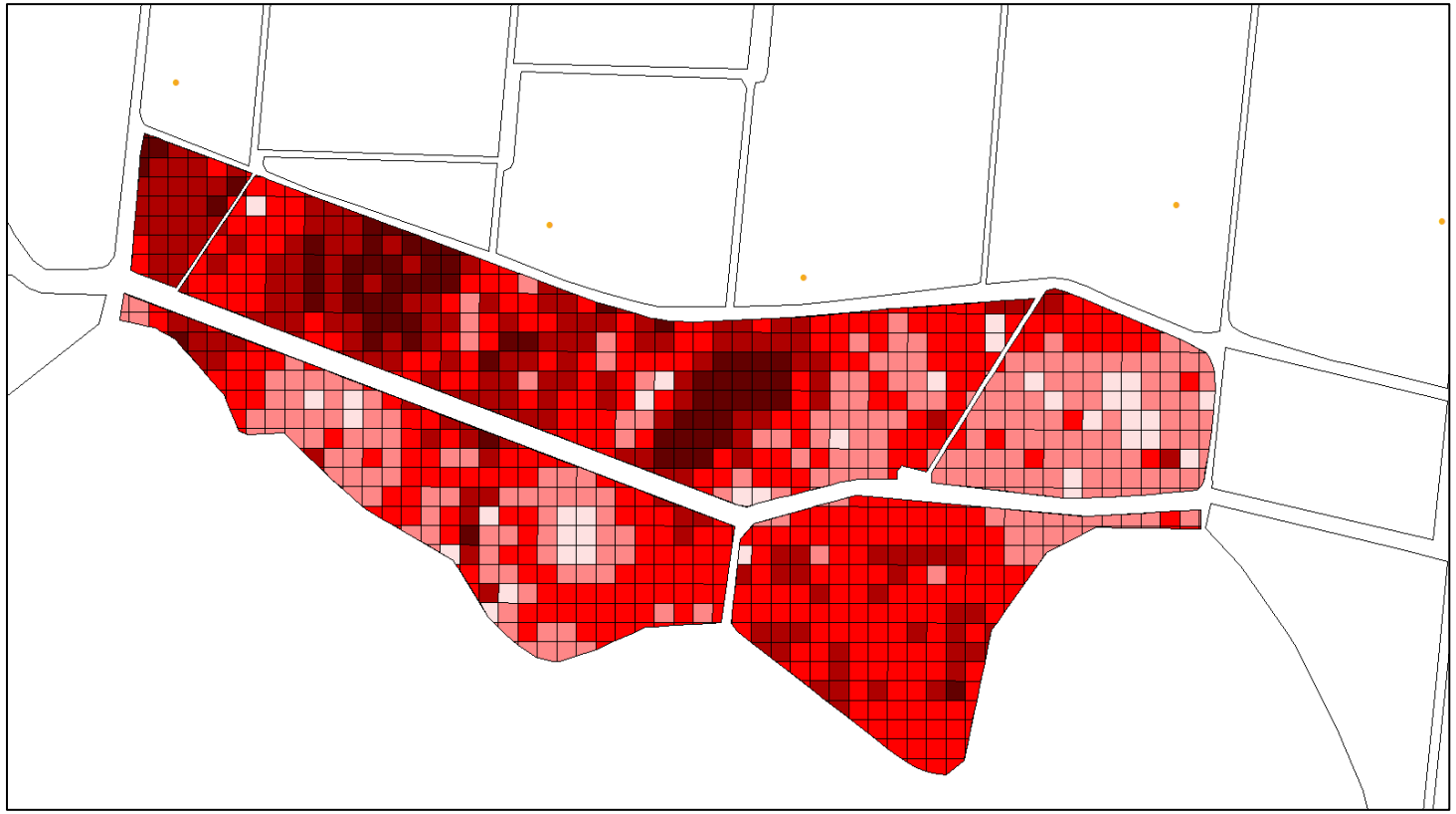
El_Alizal-19_080105_providencia_Rec: Bloc de notas

Archivo Edición Formato Ver Ayuda

```
Field Name: El_Alizal; 19
Hectares: 400.30
Farm: 080105
Client: providencia

Equation:                          Provi_N_3
Product:                           Urea
Min. Rate:                         280.0 Kg./ha.
Max. Rate:                         410.0 Kg./ha.
Avg. Rate:                         345.8 Kg./ha.
Total Urea:                        6215.40 Kg.
  Total N (46%):                     2859.1 Kg.
Product Price per kilogram:                $0.00
Product Cost:                      $0.00
Number of Hectares to be Applied:          17.98 ha.
Per Hectare Application Charge:    $4.50
Anticipated Application Charge:    $80.91
Total Cost:                        $80.91
Cost per Applied Hectare:                  $4.50
Total Hectare Cost:                $0.20
```





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RENTABILIDAD DE LOS SERVICIOS DE PRECISIÓN

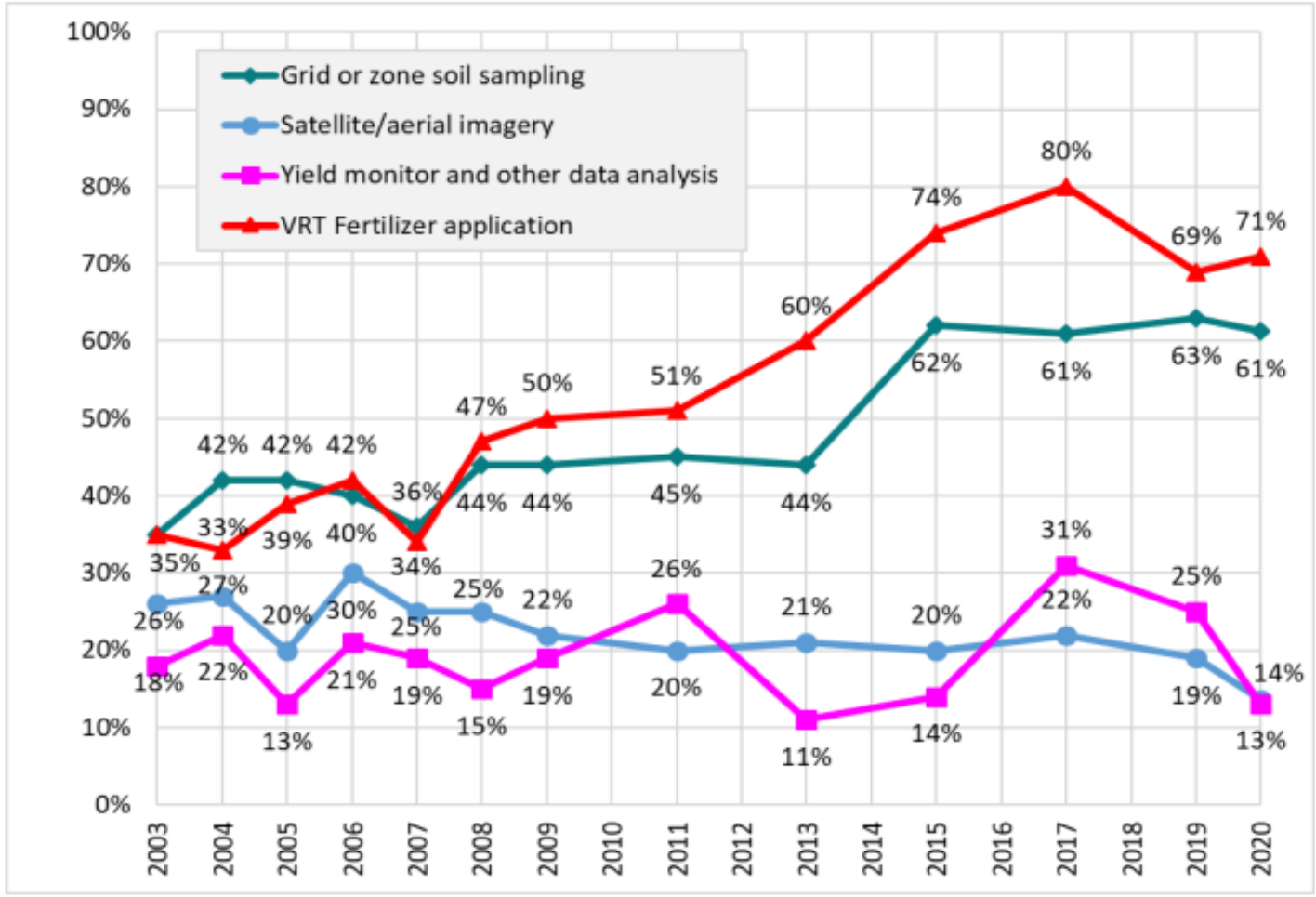

Figure 13, Q14: Profitability of precision services over time for retailers.

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RENTABILIDAD DE LOS SERVICIOS DE PRECISIÓN

Overall, the categories with the greatest percent of respondents making a profit are VRT fertilizer applications (71%), VRT lime applications (67%), grid or zone soil sampling (61%), precision planter equipment sales (55%), and telematics equipment sales (56%). These four offerings stand apart from the others for profitability. On the other end of the spectrum UAV or drone imagery is a service area where dealers struggle the most with almost half of dealers reporting they are not breaking even. With many technologies a third to a half of dealers report that they don't know—some of these being newer products and services. Including those that report just breaking even with profitability, over half of dealers report favorable bottom lines with grid or zone plant tissue sampling (69%), variable seeding prescriptions (65%), field mapping (65%), precision planter equipment sales (61%), EC mapping (59%), yield monitor sales/support (59%), profit mapping (52%), guidance/autosteer sales and support (51%), and satellite/aerial imagery (51%).

Figure 13 shows the percent of respondents making a profit in certain precision ag services over time. More dealers report making a profit with VRT fertilizer applications and grid soil sampling as compared to a decade past. Dealers reporting profits in satellite and aerial imagery and yield monitor and other data analysis have not had similar increases in that same time.

La Figura 13 muestra el porcentaje de encuestados que obtienen ganancias en ciertos servicios de agricultura de precisión a lo largo del tiempo. Más distribuidores informan que obtienen ganancias con las aplicaciones de fertilizantes VRT y el muestreo de suelo en cuadrícula en comparación con una década pasado. Los comerciantes que reportan ganancias en imágenes satelitales y aéreas y monitores de rendimiento y otros análisis de datos no tuvieron aumentos similares en ese mismo tiempo

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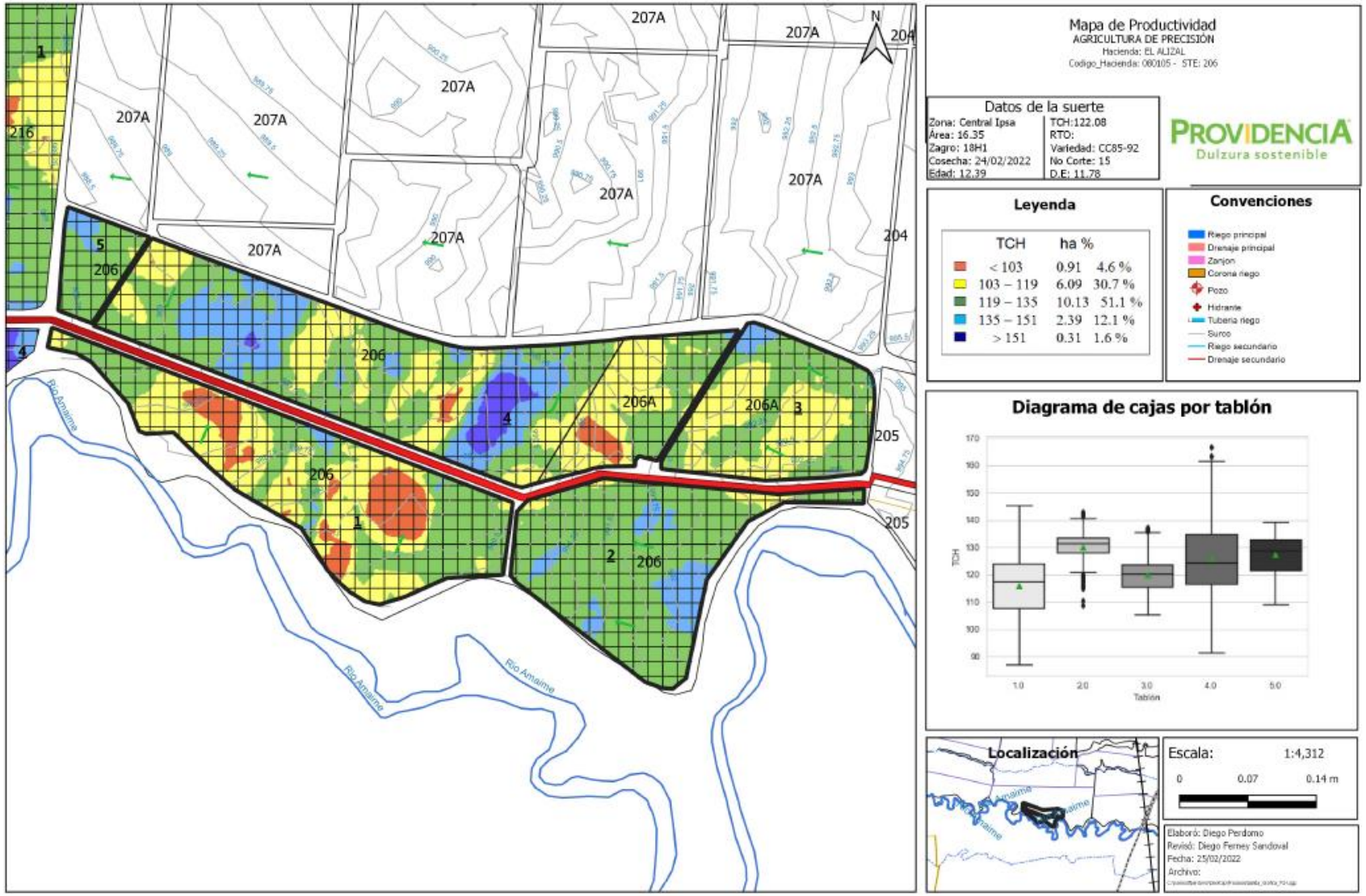
PLANES DE MANEJO CON MAPAS DE PRODUCTIVIDAD



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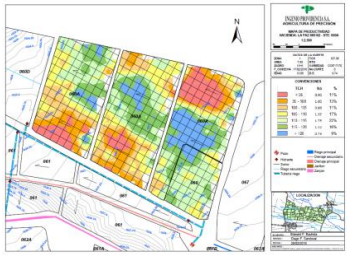
PLANES DE MANEJO CON MAPAS DE PRODUCTIVIDAD

1

Generación Mapa Productividad



Departamento AP
Diego Perdomo

Facilitador AP

2

- Colecta mapas de productividad
- Diligencia Control de mapas.
- Entrega mapas de productividad (JZ – Mayordomos y jefe de zona)
- Diligenciamiento BD planes de manejo (Prioridad suertes baja productividad)
- Elaboración indicadores Planes de manejo
- Verificar en Carpetas compartidas los MP

Planeación (Jefe de zona, Mayordomo)

3

- Estructuración planes de manejo
- Gestión recursos planes de manejo

Ejecución (Mayordomo)

4

- Ejecución plan de manejo

Seguimiento (Jefe de zona, Mayordomo)

5

- Verificación de la ejecución de Planes de Manejo

Administración de planes de manejo (Facilitador AP)

6

- Diligenciamiento BD planes de manejo
- Elaboración de indicadores Planes de Manejo

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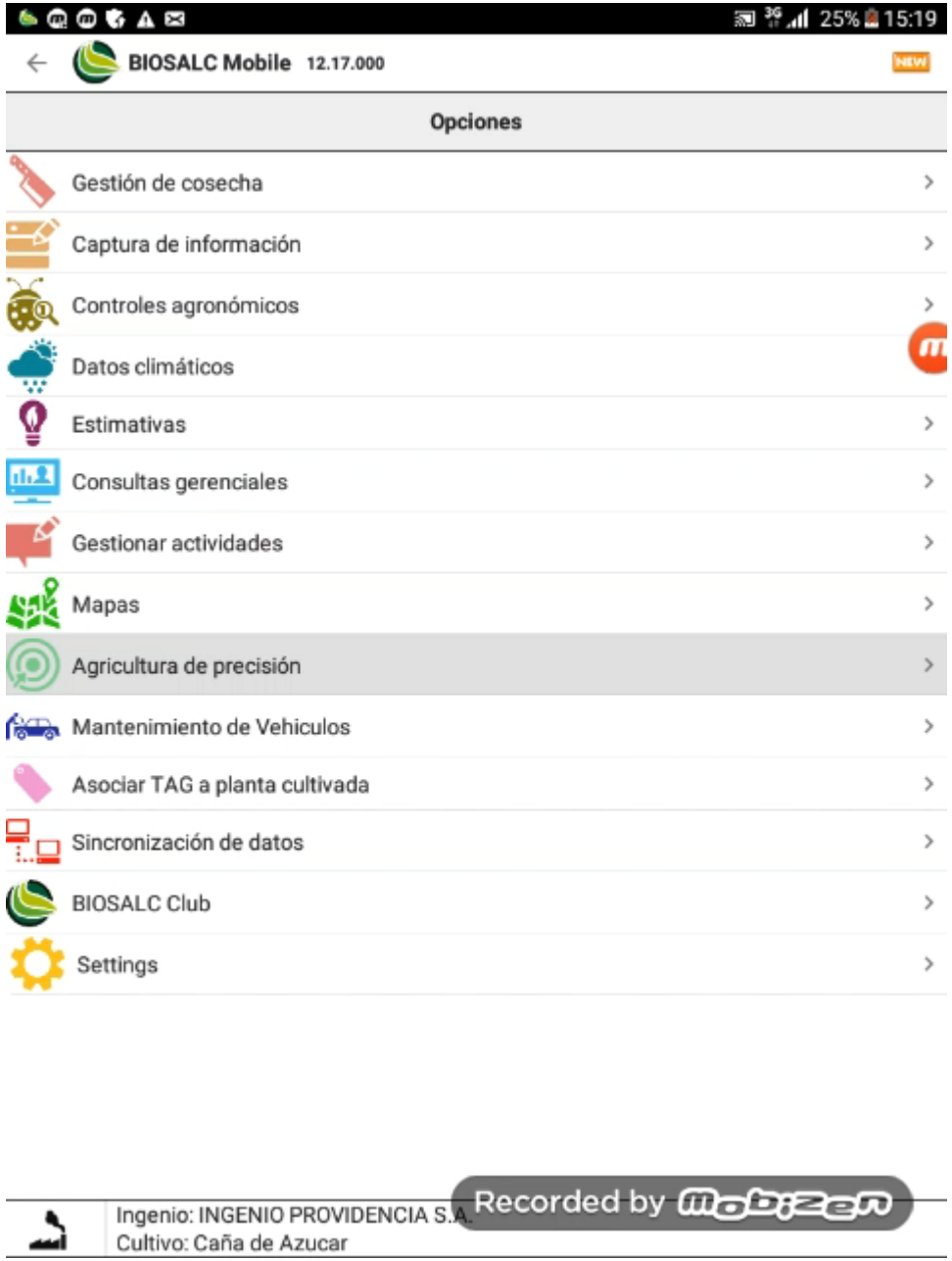

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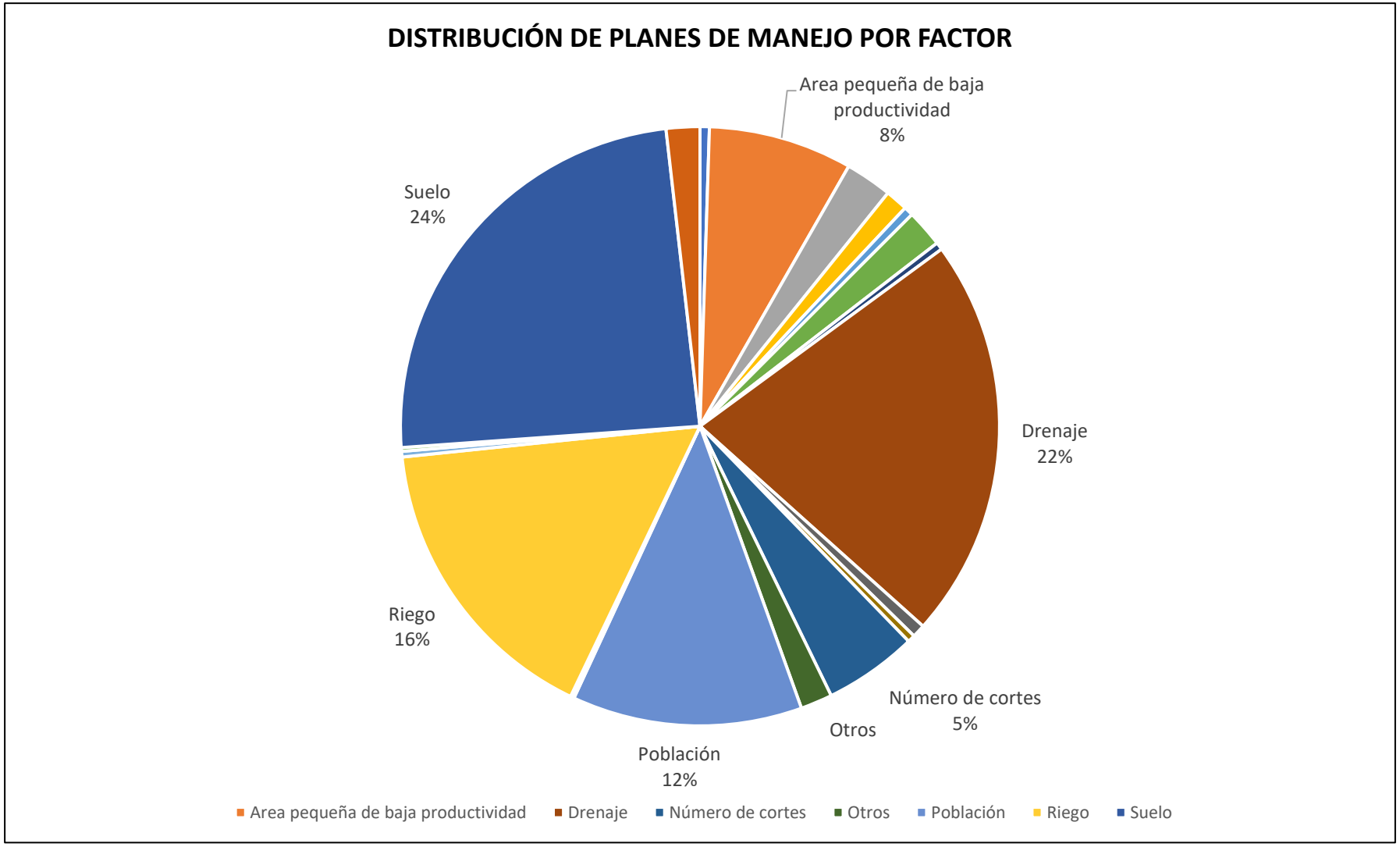

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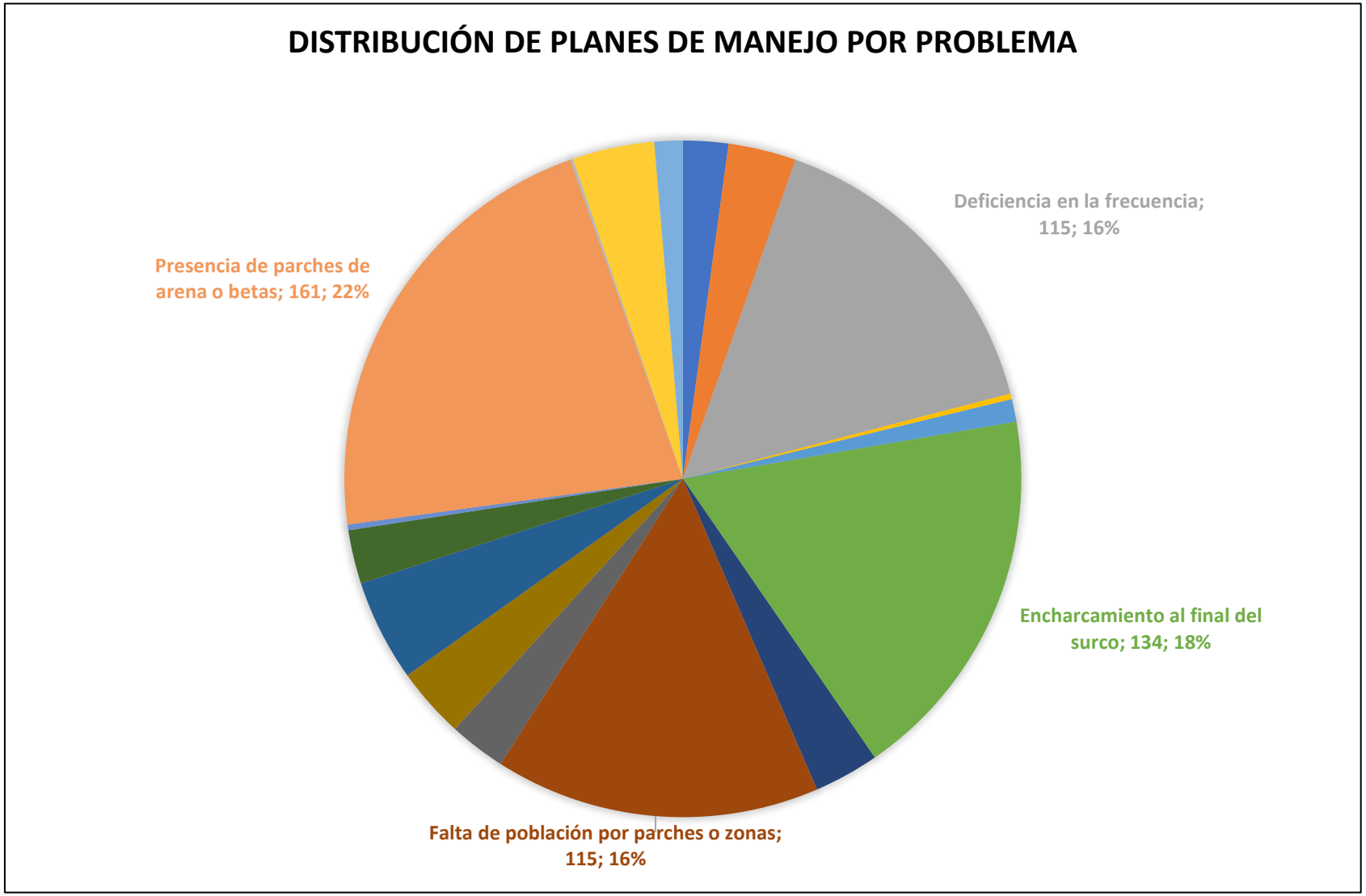

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