

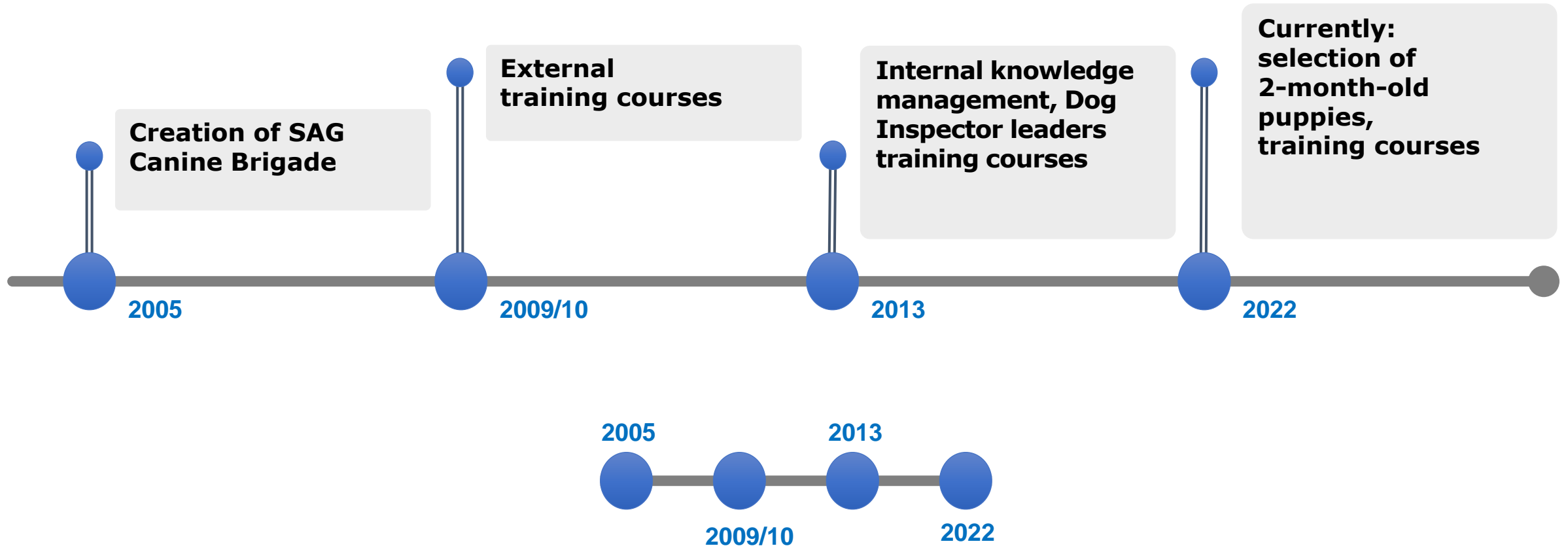


Canine Brigade - SAG

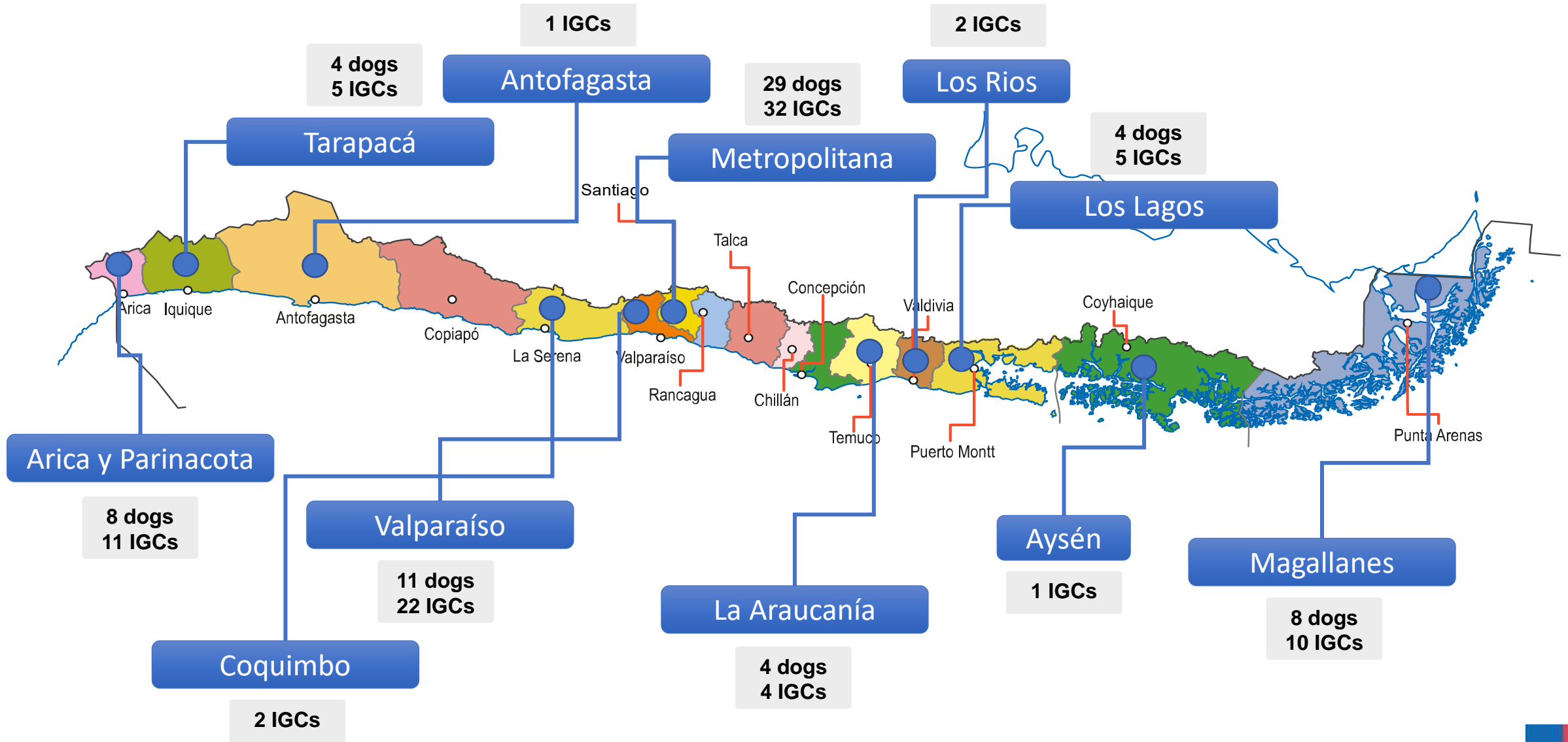
Oscar Camacho Inostroza



Overview: Brief timeline



Overview: National Presence



Detector Team is the operating unit of SAG Canine Brigade, consisting of:



Dog Inspector leaders

The Dog Inspector leader (IGC) is an Official SAG Inspector, who possesses the knowledge and skills to work at the border with an operational detector dog

Region	Total
ARICA Y PAR	11
TARAPACA	5
ANTOFAGASTA	1
COQUIMBO	2
VALPARAISO	22
METROPOLITANA	32
LA ARAUCANIA	4
LOS RIOS	2
LOS LAGOS	5
AYSEN	1
MAGALLANES	10
Grand total	95

Detector Team is the operating unit of SAG Canine Brigade, consisting of:



Detector dog

Dog trained to detect by smell the odour of products whose entry into Chile is regulated by the Agriculture and Livestock Service, due to their high risk of introducing pests or diseases of economic importance for the country, such as: fruit fly, African swine fever, foot and mouth disease, classical swine fever, etc

Region	Total
ARICA Y PAR	8
TARAPACA	4
VALPARAISO	11
METROPOLITANA	29
LA ARAUCANIA	4
LOS LAGOS	4
MAGALLANES	8
Grand total	68

Management of dogs team, through a rigorous selection process of candidate dogs

Dogs aspiring to the Canine Brigade come from:

- Donations from private and non-governmental organisations (NGOs) such as foundations, through signed agreements

- Purchases of dogs from dog kennels

3 Stages:

- Stage I, behavioural assessment: A commission of experts on site applies a series of behavioural challenges.
- Stage II, veterinary assessment: A series of tests are applied to determine health compatibility with a working dog.
- Stage III, training assessment: Within 3 months the dog should be able to learn the inspection technique and detect 12 basic odours of interest to SAG.

Follow-up:

- By continuous monitoring, through technical evaluations and performance at the border.

End of a dog's service:

- Decrease in performance.
- Injury and/or illness.
- Older than 6 years.



Training particularities of SAG Canine Brigade

- A dog can work with different Dog Inspector guides.
- In 3 months the dog learns the inspection technique.
- Positive reinforcement (rewards), which can be tangible or intangible.



Positive reinforcement, rewards.



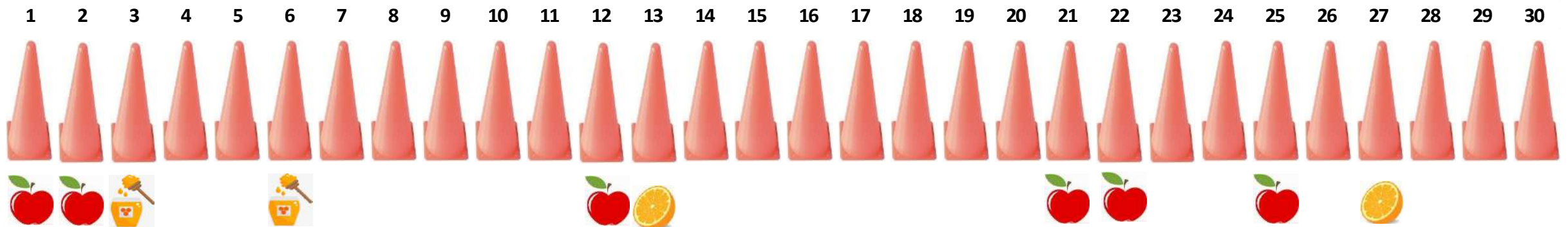
Tangible: controlled delivery of the "apport" (reward/toy) to the detector dog after marking or pointing.



Intangible: positive reinforcing words are used to reward the mark made by the detector dog without using the "apport".

Technical evaluation, methodology

- Walk the detector dog through a line of 30 plastic cones.
- A sieved plastic capsule (DEC = Canine Training Device) with a piece of a product of SAG interest is hidden inside 10 cones.
- Three odours implanted in the olfactory memory of the dogs, based on previous training records, are used.
- The products are randomly arranged in proportion to the most frequently intercepted products at national level, e.g. apple (6 DECs), orange (2 DECs) and honey (2 DECs).



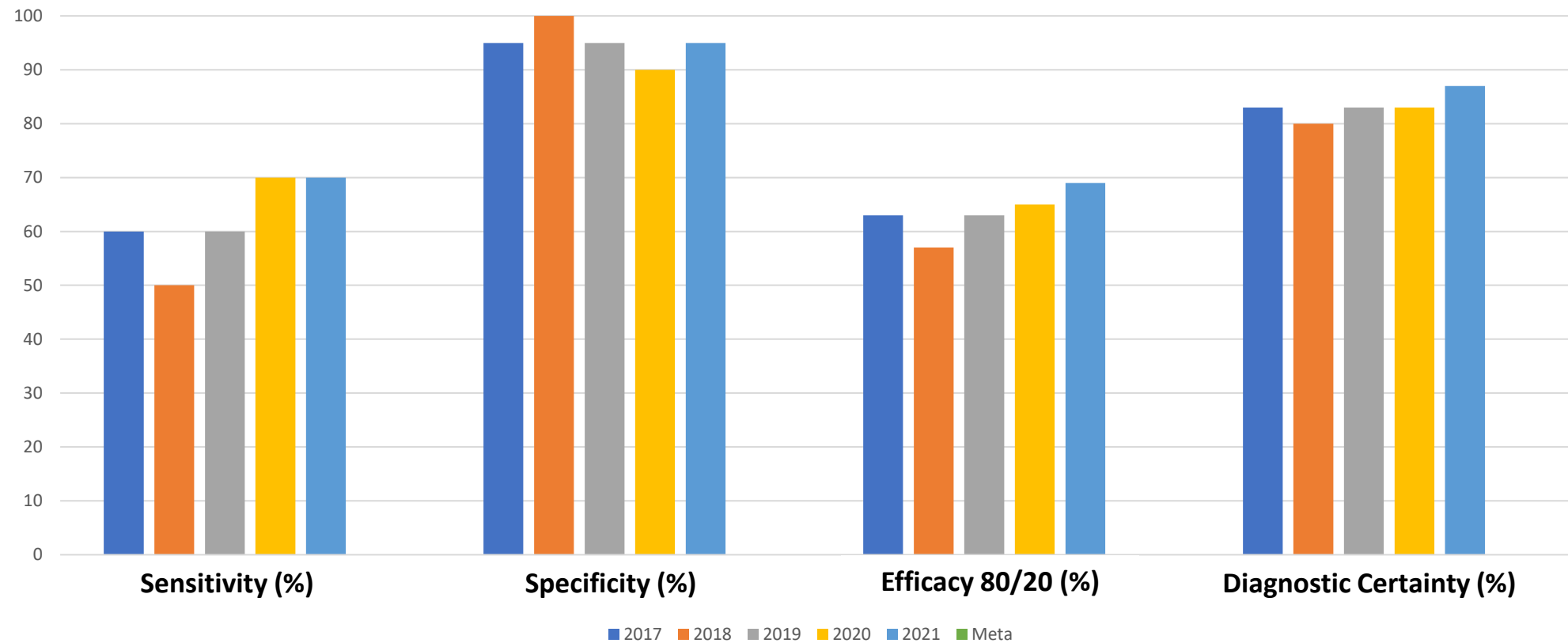
Technical evaluation, results from 2017 to 2021

Region	Sensitivity (%)					Specificity (%)					Efficacy 80/20 (%)					Diagnostic Certainty (%)				
	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
Arica y Parinacota	35	45	55	55	80	95	95	90	92	90	47	57	57	60	62	75	80	80	80	80
Tarapacá	80	55	65	80	80	95	95	95	80	95	77	58	69	61	72	90	80	87	80	87
Valparaíso	60	40	60	75	80	100	100	95	80	98	62	53	66	58	66	83	78	83	78	83
Metropolitana	60	60	60	70	80	100	100	100	100	100	63	62	63	76	84	83	83	83	90	93
La Araucanía	-	-	-	-	100	-	-	-	-	98	-	-	-	-	96	-	-	-	-	99
Los Lagos	60	60	80	65	80	95	100	85	85	83	62	61	79	60	66	83	82	85	81	83
Aysén	55	40	70	80	70	88	100	90	95	85	55	55	65	77	60	77	80	83	90	80
Magallanes	70	50	50	70	50	95	95	95	92	80	69	59	69	67	44	87	82	73	83	69
National	60	50	60	70	70	95	100	95	90	95	63	57	63	65	69	83	80	83	83	87

Important data:

- 386 detector teams evaluated in these 5 years.
- 4 years old dogs on average.
- The older the age of the dogs, the performance decreases significantly in the Efficacy 80/20 and Diagnostic Certainty parameters.
- In 2021 the best performance in terms of efficacy parameters was achieved.

Technical Evaluation. National summary results from 2017 to 2021



Some of the detections that SAG Canine Brigade has made



1,800 kilos of hazardous products
Chungará, Arica y Parinacota



Equine hooves and hoofs
Santiago International Airport



Snails in household goods
Valparaíso Port



21 exotic birds
Los Libertadores, Valparaíso



Seeds attached to the body
Santiago International Airport

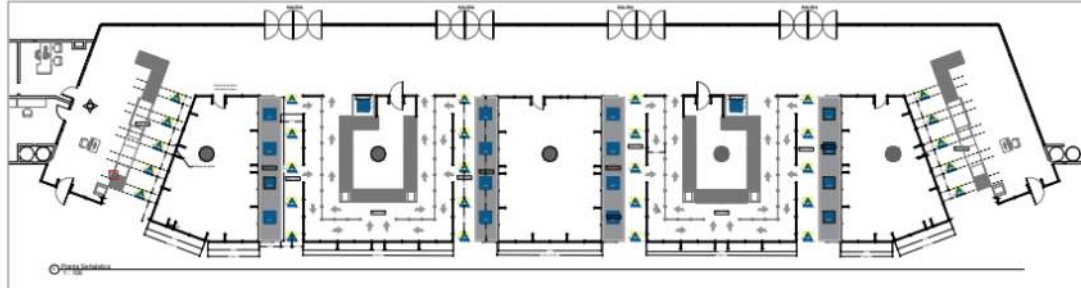


Boa skin
San Sebastián, Magallanes



Ambystoma mexicanum hidden in body clothing
San Sebastián, Magallanes

Experience at Santiago International Airport



Canine Brigade module

- 2 modules for the exclusive inspection of passengers and hand luggage with detection dogs. Each module has 2 rows.
- Up to 2 detection teams can work in each row.



Strengths of the Detector Team

Wide range of odours of interest

- About 30 different odours. Pest odours in some dogs (*Halyomorpha halys*, *Lymantria dispar*, Asian race), and other types of odours, such as nests of bird species at risk).

High inspection productivity

- Automobiles: 1,5 minutes.
- Buses: 5 minutes.
 - Trucks: 3 minutes.

Versatile in different scenarios

- Types of control (air, sea, land)
- They can reach places that are difficult to access.

Operational time

- 30 to 60 minutes.
- Rest for 5 to 15 minutes.

High effectiveness

- Over 80% of hits

The annual technical evaluations carried out on the detector team show the ability to detect at least 8 out of 10 hidden odours of SAG interest.

Facilitation of entry

- Short control times.

Detection team significantly facilitates the entry of means of transport at border control.

Transportable

- They can be taken to another location upon request.

Institutional videos of SAG Canine Brigade

- Unprecedented research unites RENARE and SAG Canine Brigade of Tarapacá Region <https://youtu.be/SJRRpvaEh14>
- SAG Canine Brigade: attentive, willing and trained <https://youtu.be/0h4sqj6o5KI>
- Encounters with SAG History Series: Chapter IV "The BRICAN Canine Brigade" <https://youtu.be/zmMh2ZZ6sQw>

Thank you!!!

