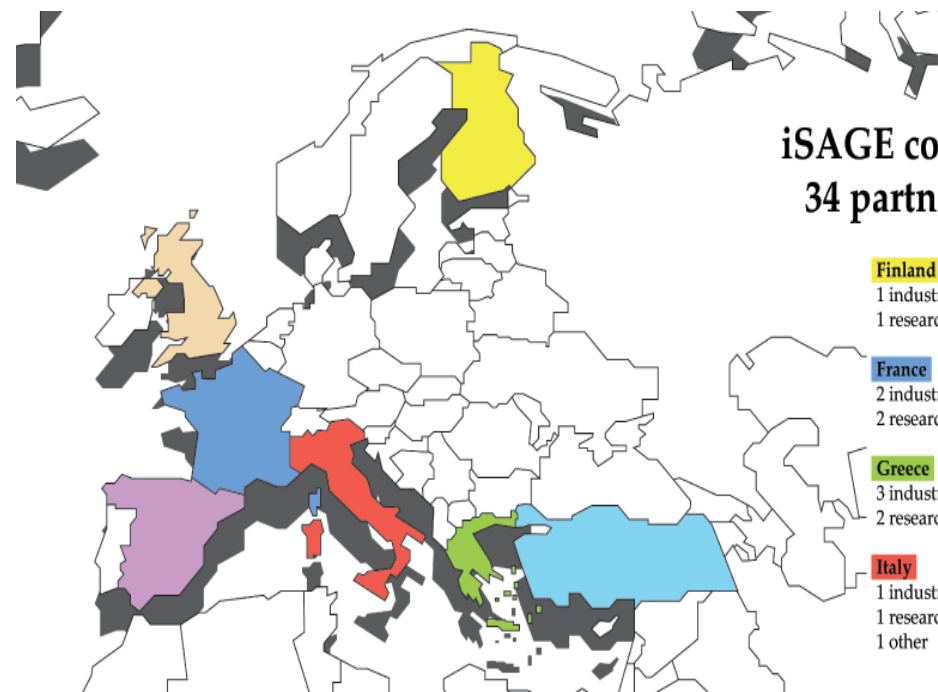




**iSAGE consortium consists of
34 partners from 7 countries.**

Finland
1 industry
1 research

France
2 industry
2 research

Greece
3 industry
2 research

Italy
1 industry
1 research
1 other

Spain
6 industry
3 research
1 other

Turkey
3 industry
2 research

United Kingdom
3 industry
2 research

INNOVATION: DISPOSITIVO PARA INSEMINACIÓN ARTIFICIAL

PATENTE EUROPEA CON NÚMERO 17197160.9 – 1695.

Zaragoza , 11de Diciembre de 2019

Fernando Freire (ASSAFE)

Ángela Rábano (AESLA)

LUIS ERNESTO REYES (inventor)



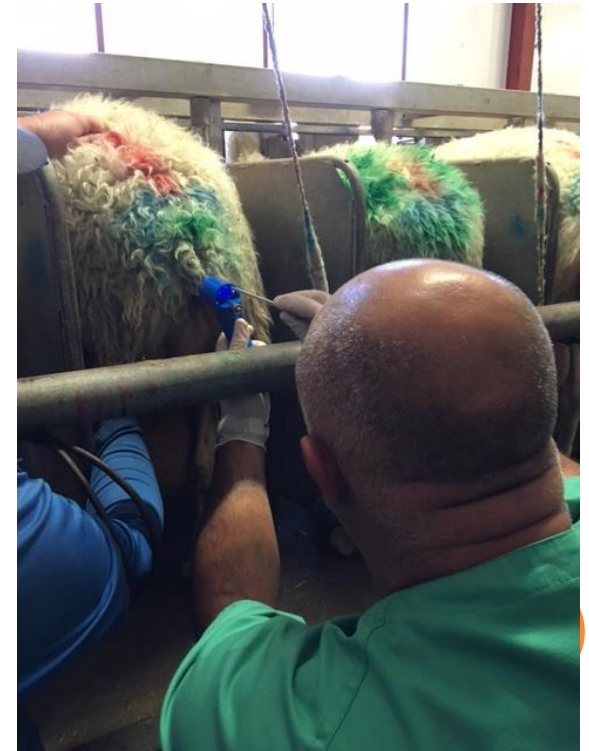
WHAT IS INNOVATION?

The process of translating an idea or invention into a good or service that creates value or for which customers will pay



¿WHY A NEW SPECULLUM?

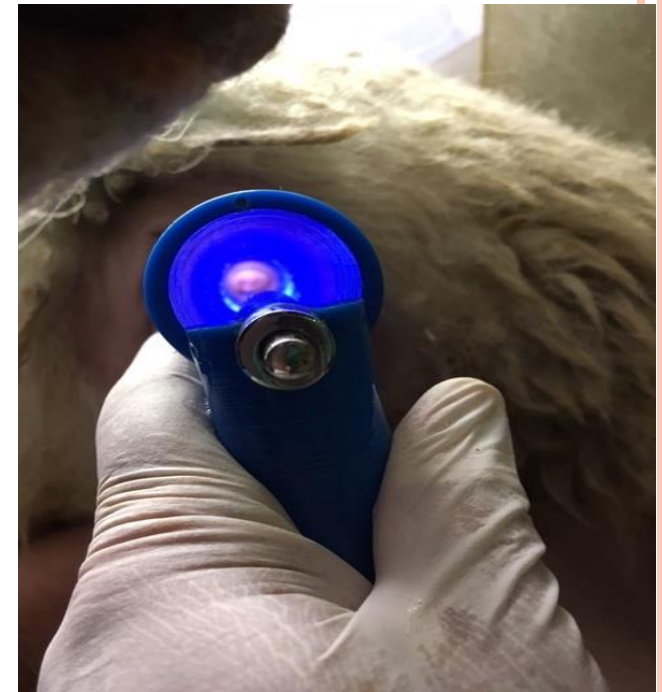
- Difficults in big/large sheep
- Improve artificial insemination results in small ruminants(fertility ?)
- To be easy the insemination process



INITIAL ADVANTAGES NEW SPECULLUM



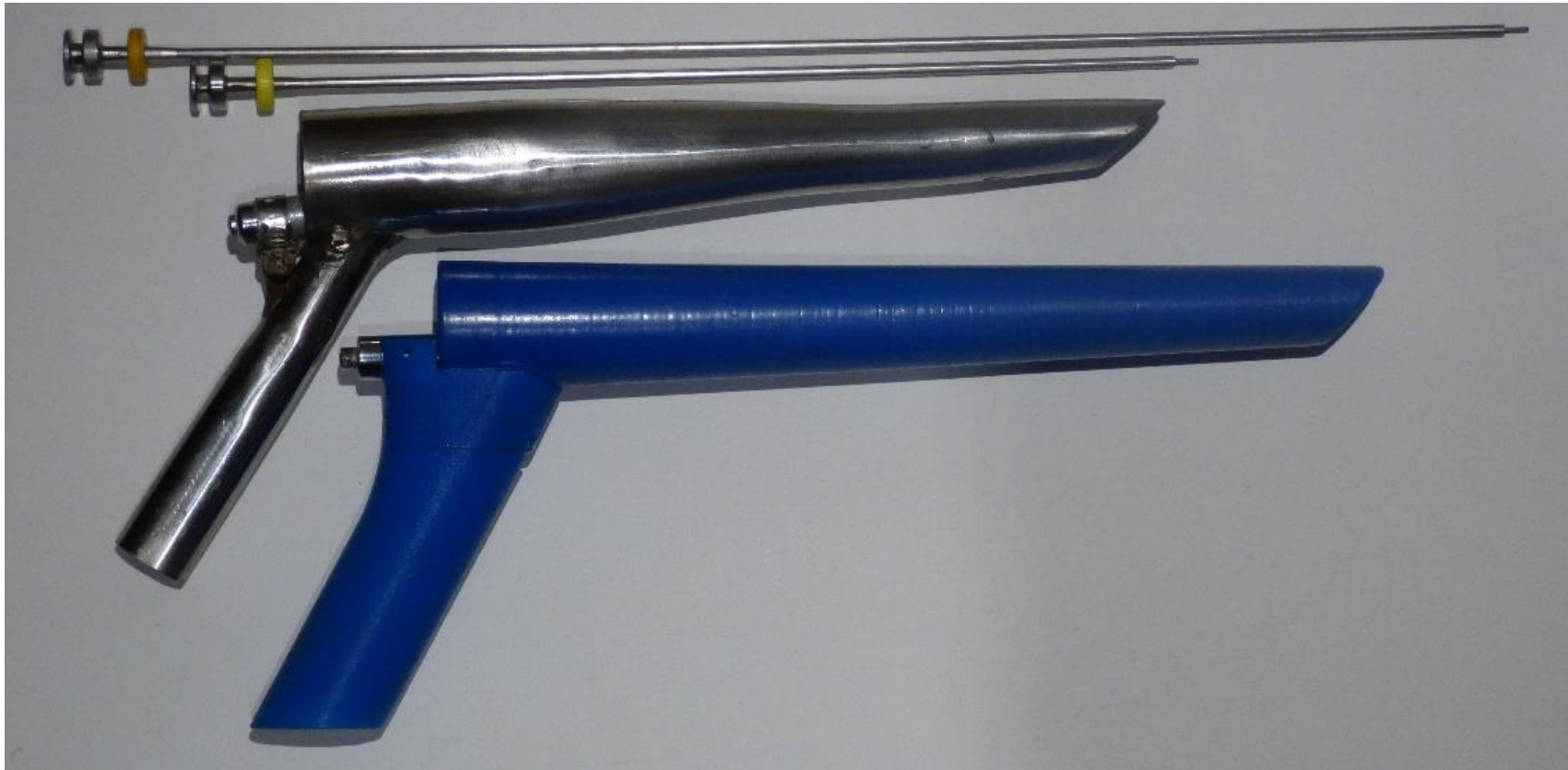
- Facilita el proceso de inseminación. Ovejas en estación.
- Mayor facilidad de penetración en vulva - vagina
- Mejor fijación del cérvix y mayor profundidad de IA
- Menos traumático
- Descarga espontánea del exceso de moco



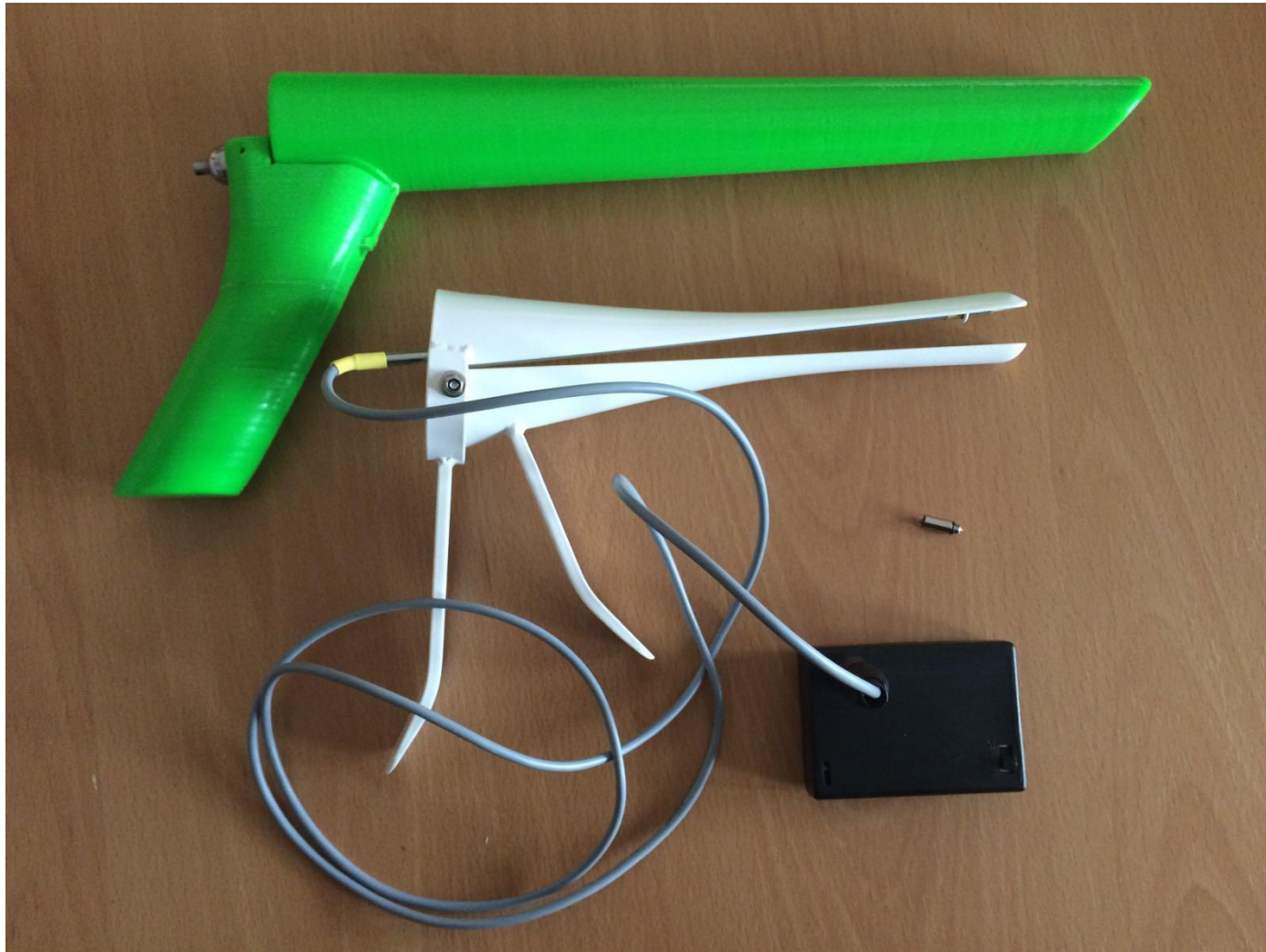
FIRST PROTOTYPE (METAL)



PROTOTYPE 2 (PLASTIC)

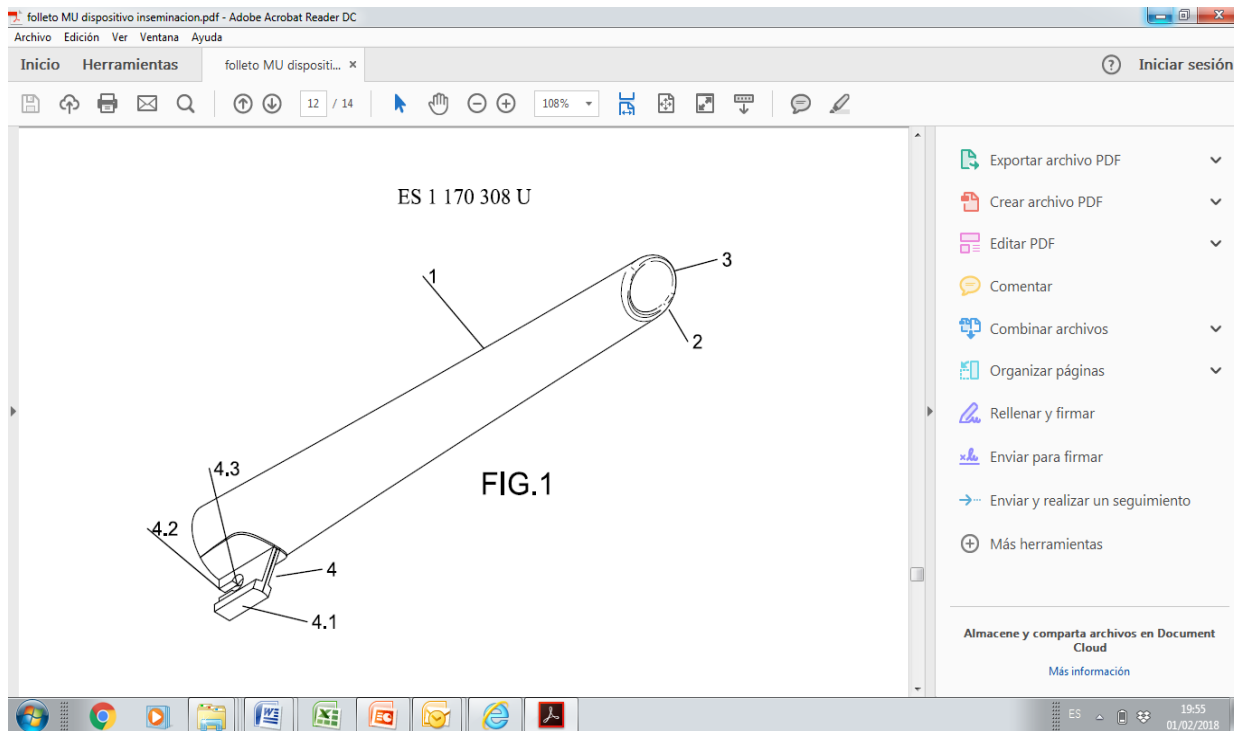


COMPARING TRADITIONAL “PICO DE PATO” AND NEW SPECULLUM



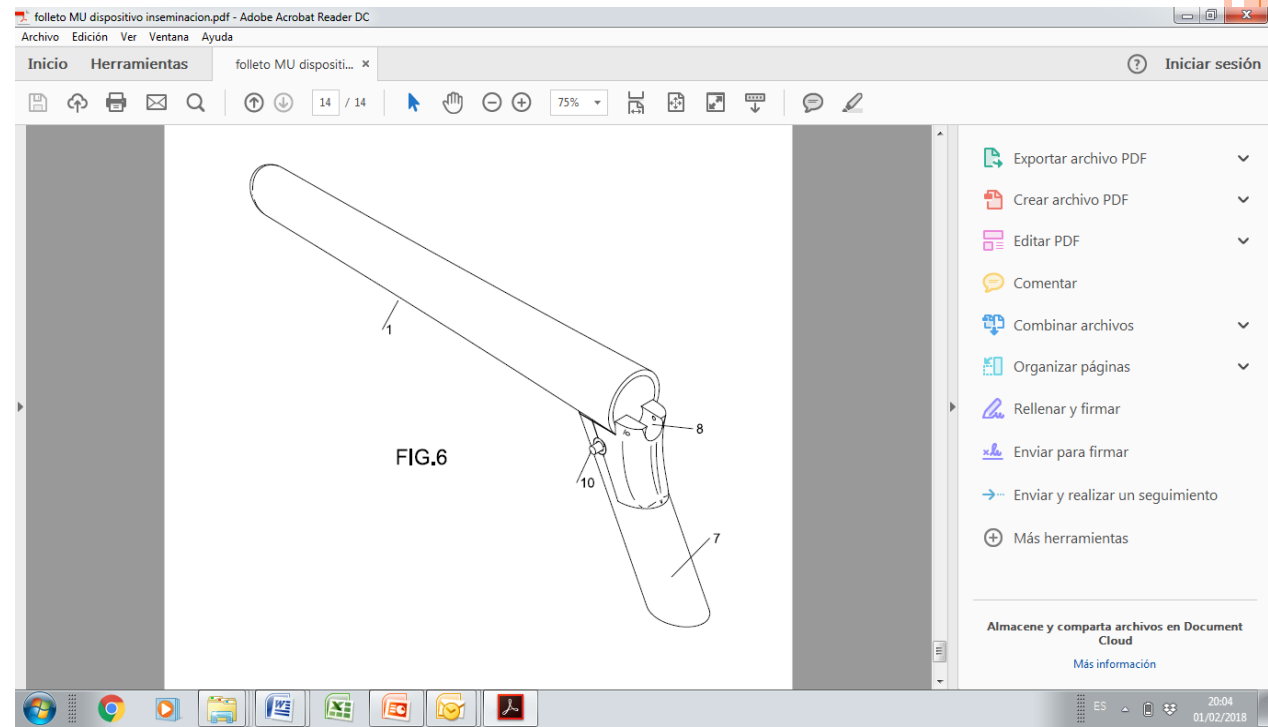
ARTIFICIAL INSEMINATION DESIGN

- Design. Assafe- Veterinarian- IGP ingeniería collaboration
- European Patent number 17197160.9 – 1695.

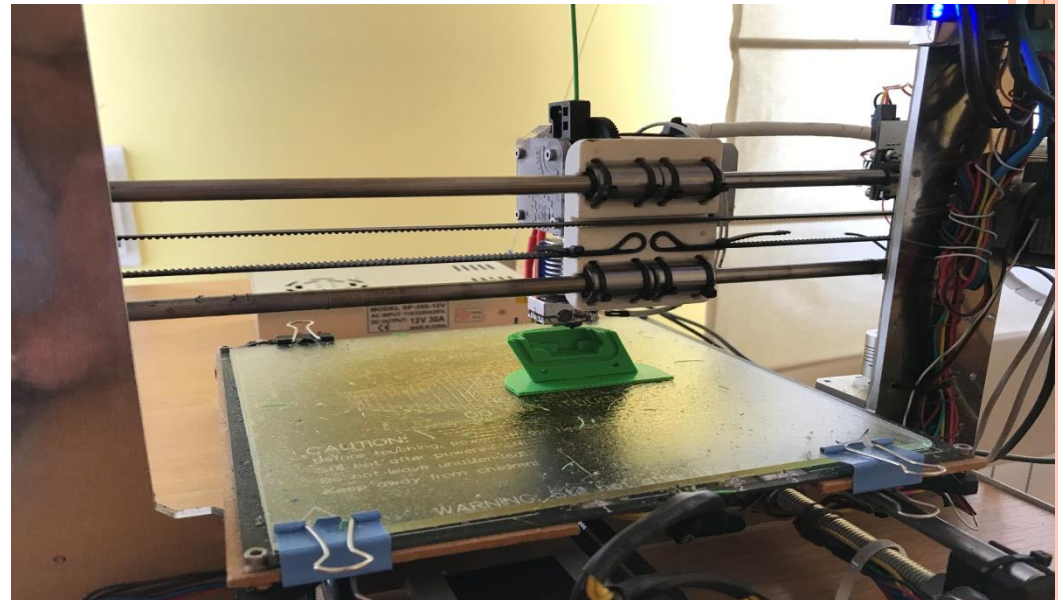
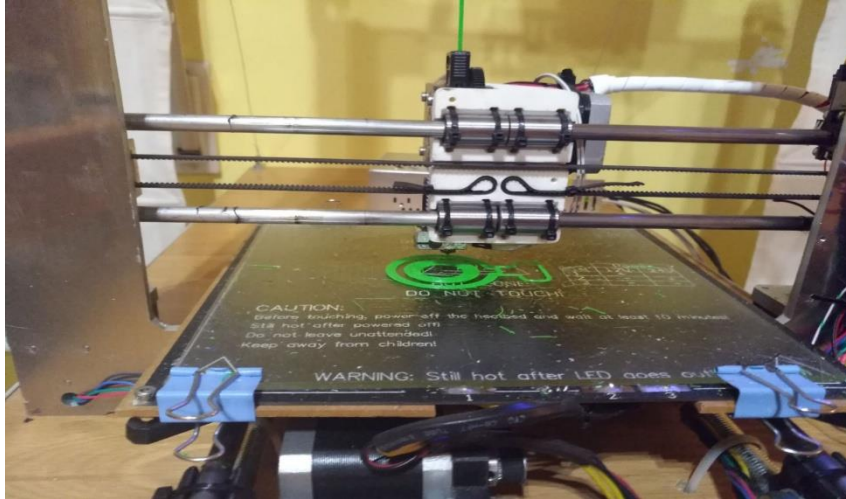


DISPOSITIVO PARA INSEMINACIÓN ARTIFICIAL

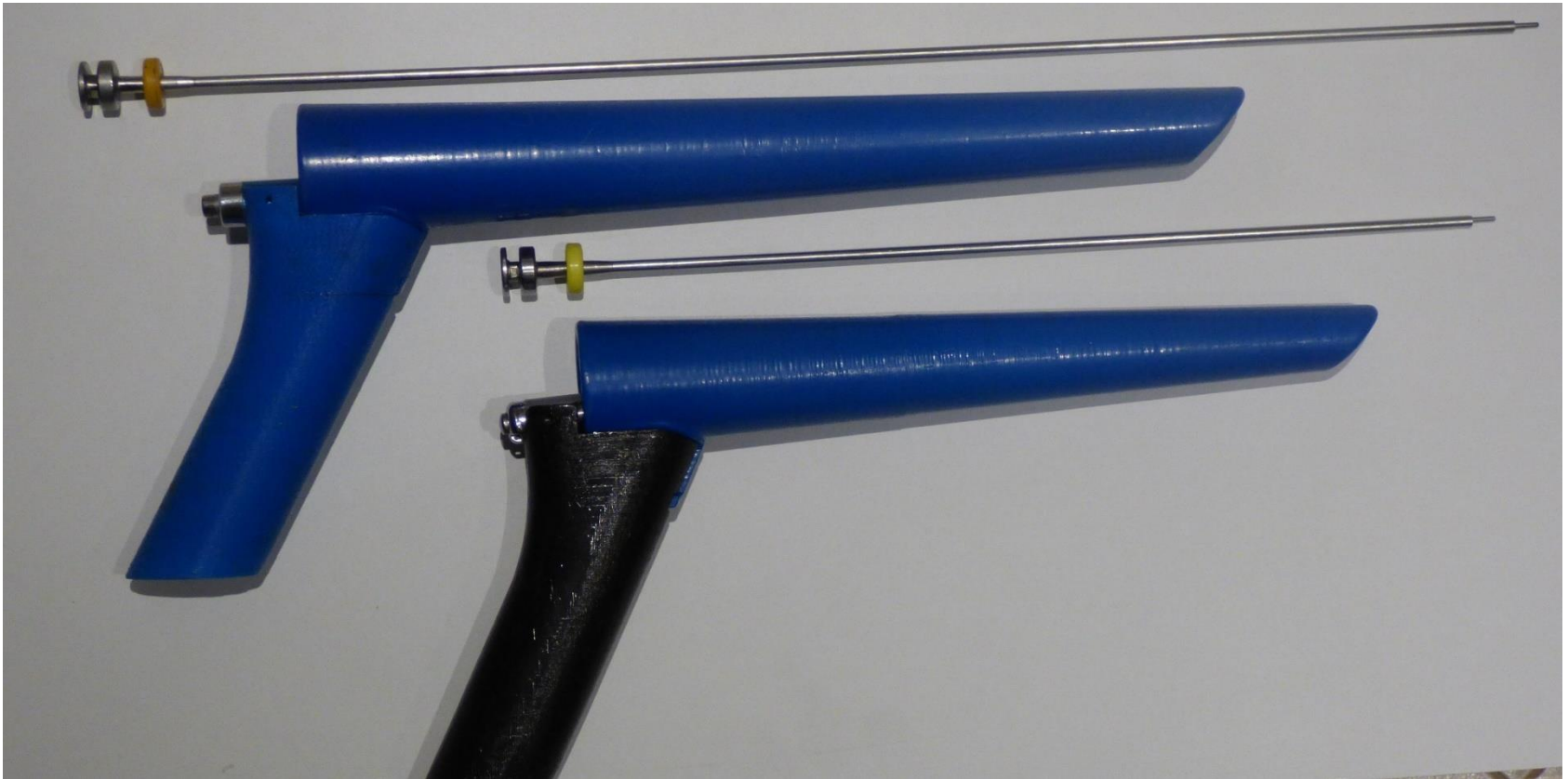
- Tubular de sección decreciente con terminación en forma de bisel o achaflanada
- El elemento tubular (1) comprende medios (4) para la fijación de la empuñadura (7)
- La empuñadura está provista de medios para el acoplamiento, fijación y liberación del elemento tubular



PLASTIC: 3D PRINTER



SHORT AND LARGE MODEL. INYECTORS.

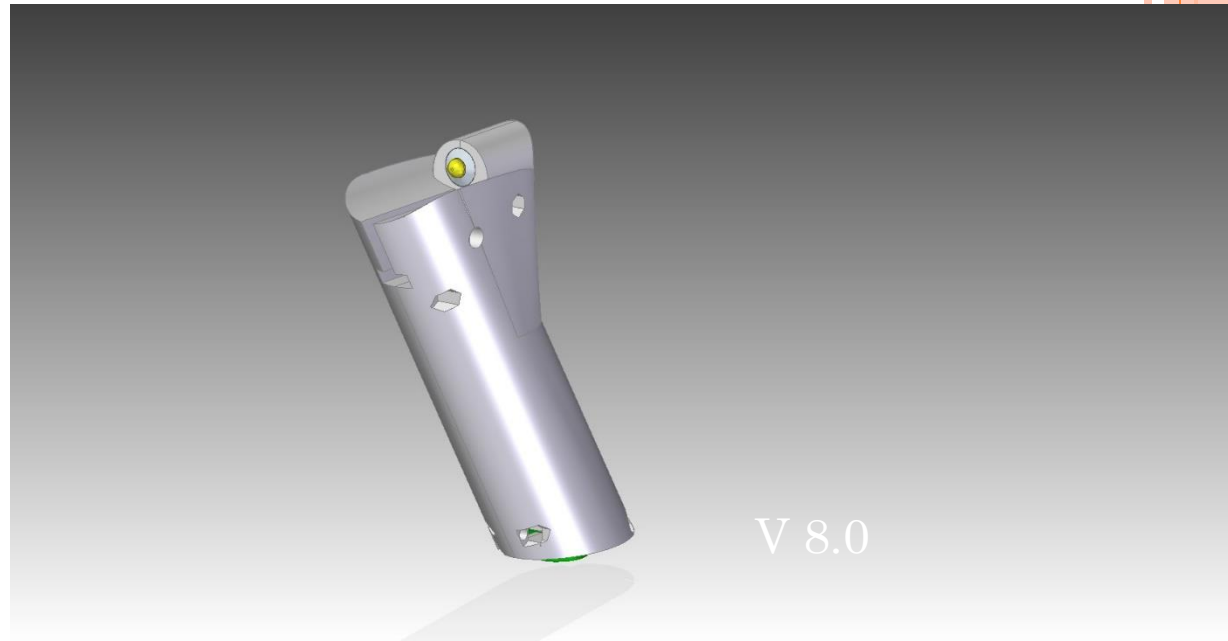
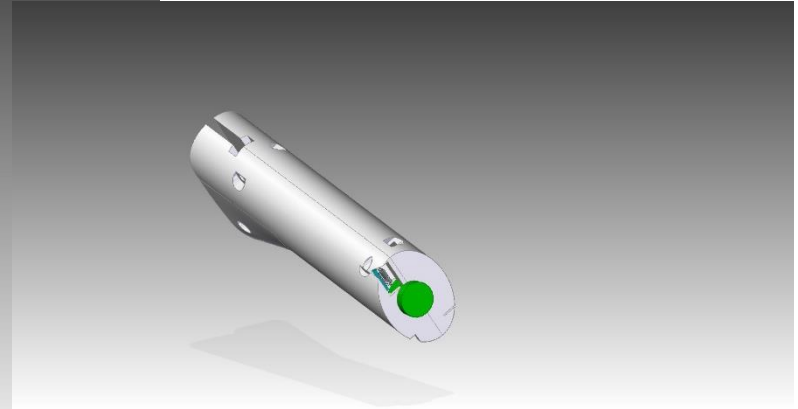


PROTOTYPE 2 (PLASTIC)

- Independent light source. Lantern
- Battery. Short duration.

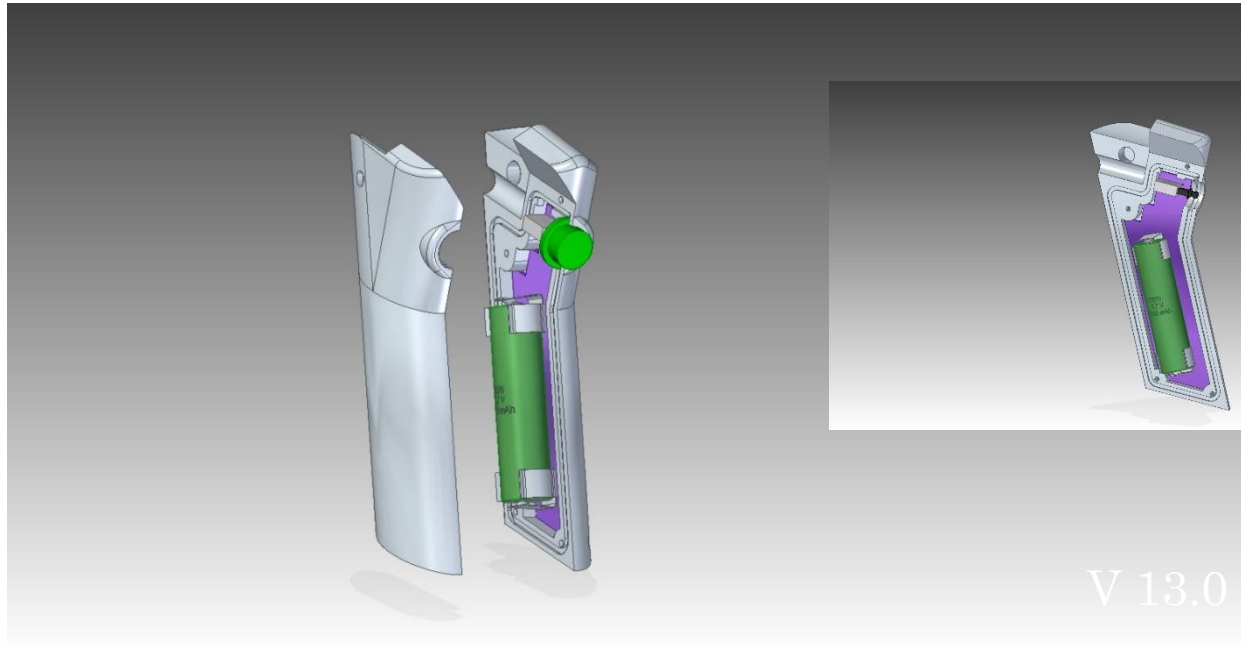
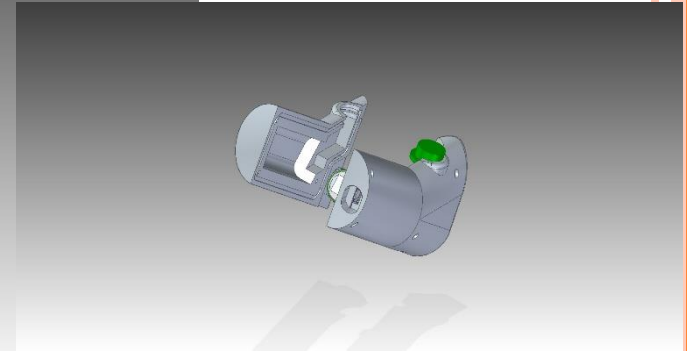
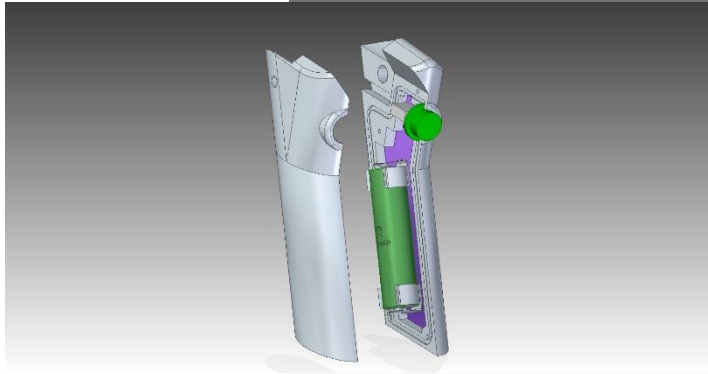


NEW PROTOTYPE . LIGHT IN HANDLE , BATTERY AND CHARGE POINT



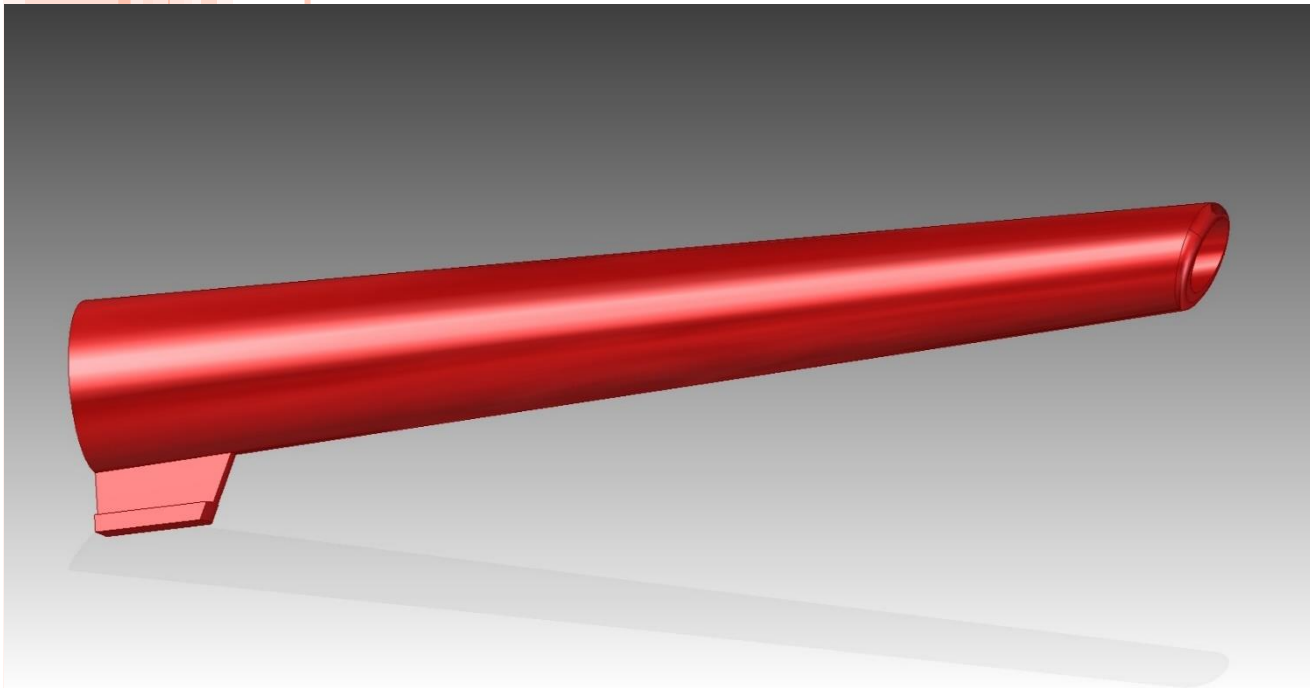
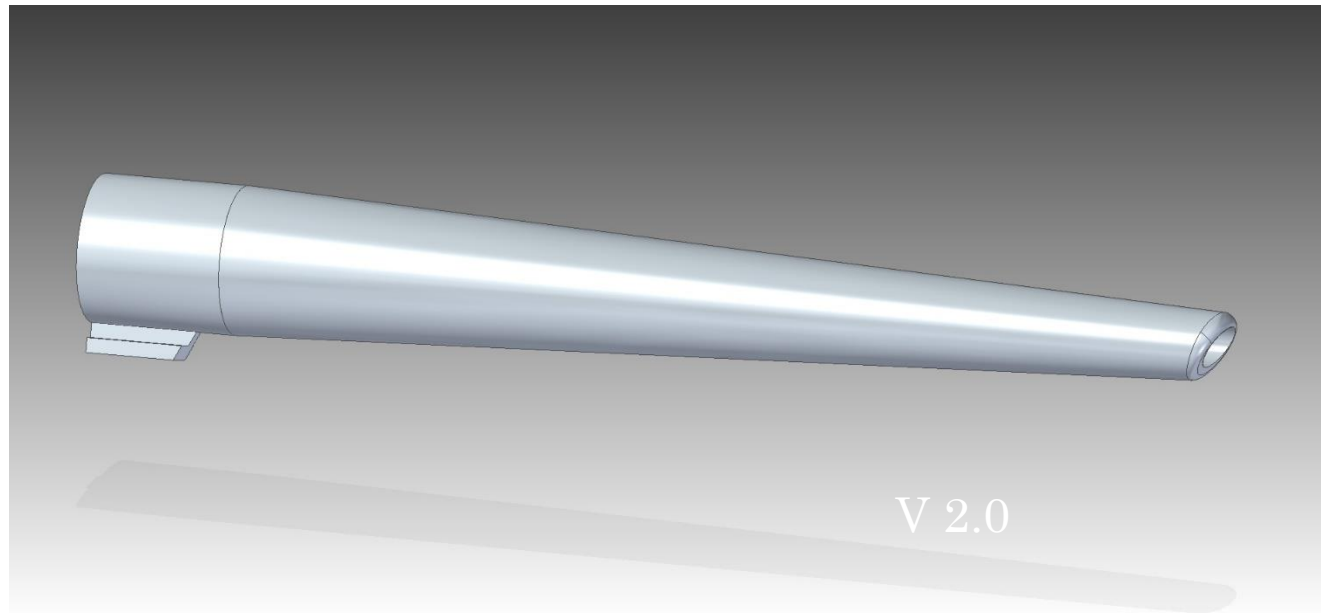
V 8.0

OTHER MODEL. BATTERY AND CHARGER

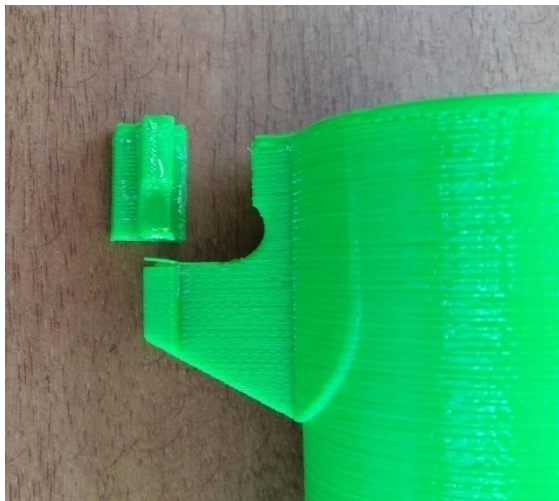


V 13.0





PROBLEMS. PLASTIC RESISTANCE



PROBLEMS FOUND

- 3D printer vs injected plastic (abs)
- Density 70% vs. 100%
- Sealing of handle.
- Assemblies / connection pieces



SERIES PRODUCTION

- Charge indicators (LED)
- Switch On/Off
- Charge point in electronic placard
- MAJOR DISADVANTAGES:
 - High **cost of matrix** for series production
 - Quality of electronic board
 - Long life battery



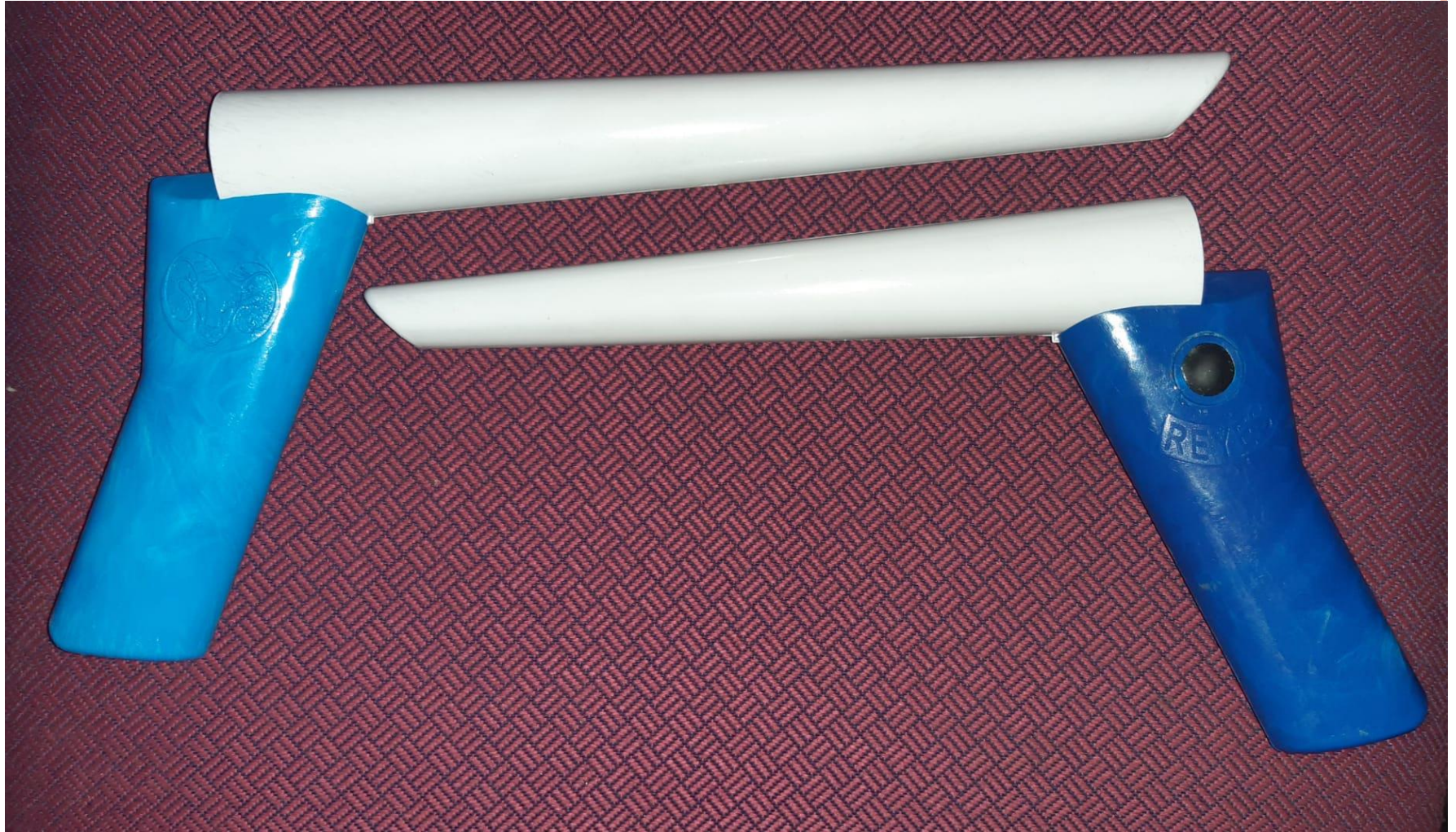
FABRICACIÓN USANDO MOLDE

- Main element : **Mango /Handle**
 - mas robusto, estanco
 - batería de larga duración y aislada con resina

- Accesory element: **Tubo / Tube**
 - adaptable en tamaño a cada raza
 - bajo coste de reposición



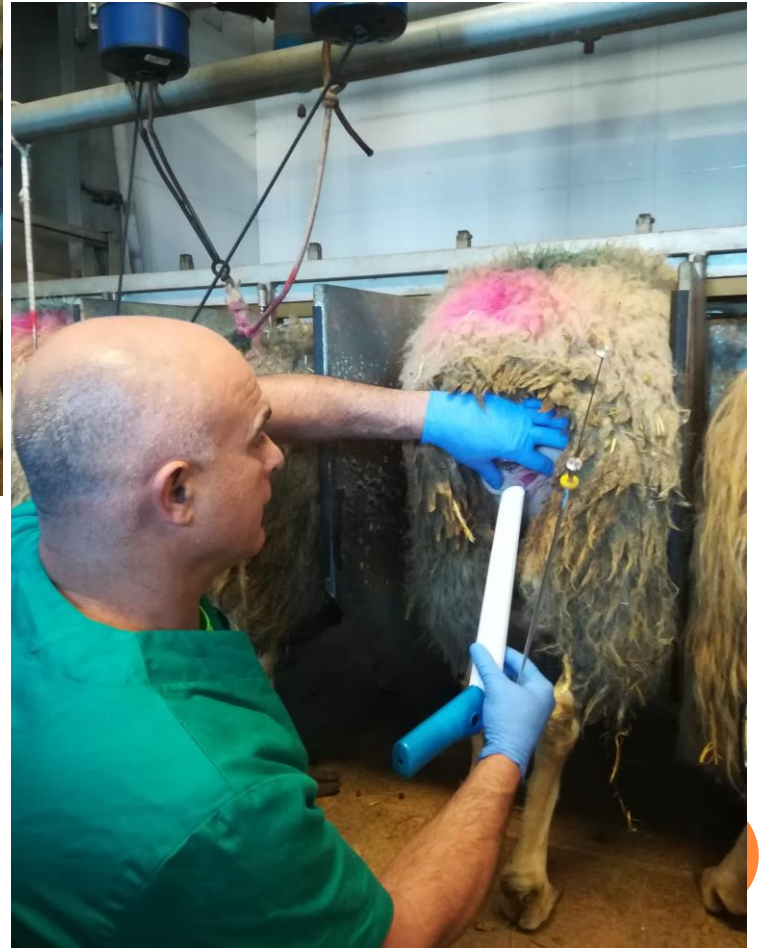
LAST DESIGN SPECULLUM



GOATS OUT OF MILKING PARLOUR



SHEEP IN MILKING PARLOUR





IMG_6945.MP4



PARTNERS

- Industry partners: ASSAF.E, AESLA, AGRAMA, ARDIEKIN, OVIARAGON, CNBL, FRIZARTA
- Research partners: INIA
- Countries: SPAIN, FRANCE and GREECE
- Period study from May 2017 to July 2019.
- Experiment was conducted in 10 sheep breeds, 9 dairy and 1 meat.
- 52 farms and more than 4,000 ewes involved in the case study
- Artificial insemination of 400 ewes: 200 controls and 200 case



BREEDS,COUTRIES ,HERDS ,RAMS NUMBER OF AI

Breed	countr y	n° herds	n° AI rams/he rd	n° ewes AI	n° technicians
Basco Béarnaise	France	2	6 to 14	126	2
Lacaune (France)	France	2	?	529	1
Manech Tête Rousse	France	4	14 to 32	598	8
Frizarta	Greece	6	4 to 6	400	1
Assaf	Spain	4	29	442	2
Lacaune (Spain)	Spain	8	3 to 6	593	1
Latxa Cara Negra	Spain	1	20	201	1
Latxa Cara Rubia	Spain	3	21	181	1
Manchega	Spain	14	16	543	1
Rasa Aragonesa	Spain	8	5	419	1

RESULTS

Breed	Country	Whole fertility	Fertility CLASSIC speculum	Fertility NEW speculum	Difference NEW vs. CLASSIC
Basco Béarnaise	France	41.3	41.4	41.1	-0.3
Lacaune	France	58.6	58.6	57.9	-0.7
Manech Tête Rousse	France	61.7	62.5	60.4	-2.1
Frizarta	Greece	43.1	44.3	41.9	-2.4
Assaf	Spain	42.8	42.4	43.1	+0.7
Lacaune (Spain)	Spain	42.0	44.7	39.2	-5.5
Latxa Cara Negra	Spain	49.8	48.9	50.5	+1.6
Latxa Cara Rubia	Spain	59.3	57.1	59.6	+2.4
Manchega	Spain	43.1	42.5	43.7	+1.2
Rasa Aragonesa	Spain	54.4	54.7	54.1	-0.6

DISADVANTAGES

- Some milk rooms need to be adapted
- Inseminators need to be trained
- Too large for some breeds
- Difficulty to move injectors
- Instrument fragility
- The mucus flows on the operator's hands
- Ewes arch their back and move



ADVANTAGES

- Ewes don't to be lifted
- Less stressful for ewes
- Improves cérvix visibility and accesion
- No auxiliary personnel is requiered
- Easy and faster AI labour (100 AI/ hour)
- AI in the milking parlour
- Good cérvix fixation
- Higher size if AI batches



FUTURE

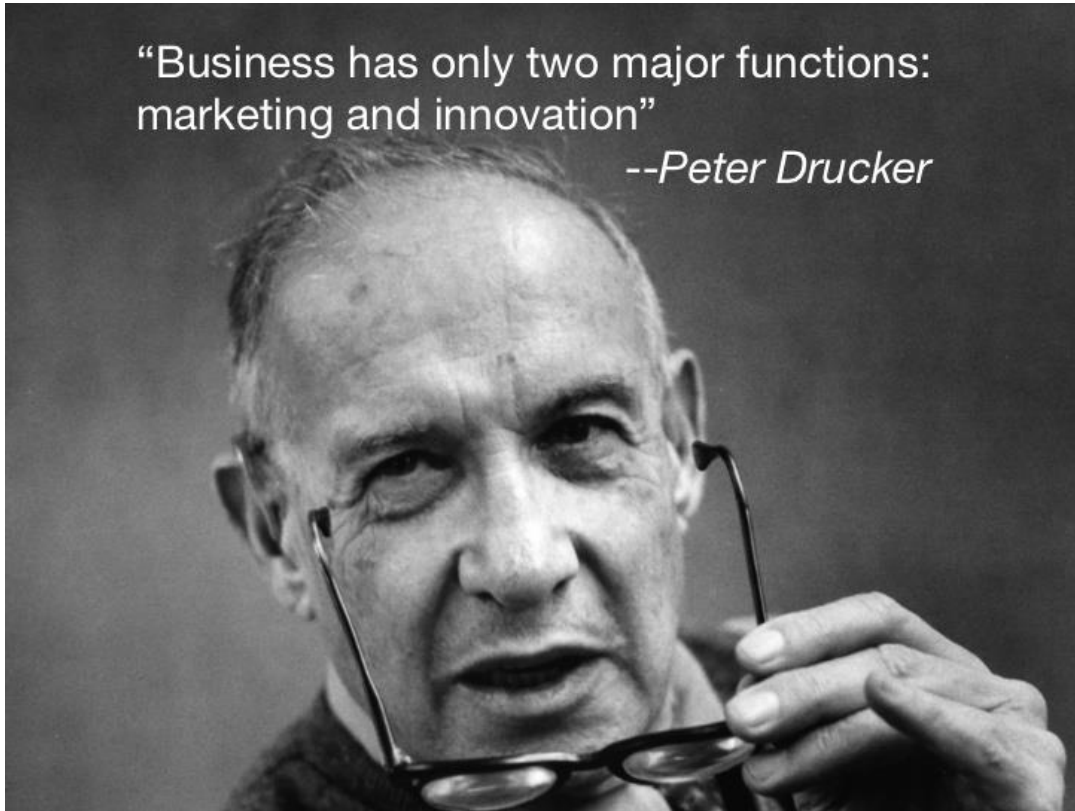
- Increase number of AI in dairy sheep
- Positive for genetic programs
- Farmers likes for need less workers
- Speed in AI
- Extend use to high number of farmers for AI





"Business has only two major functions:
marketing and innovation"

--Peter Drucker



THANKS !!!!!

