A techno-economical modelling of beekeeping operations to better anticipate the season

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ARCHAMPS TECHNOPOLE

**An exceptional lifestyle between Leman Lake & the Mont-Blanc**

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Education & Training

Companies
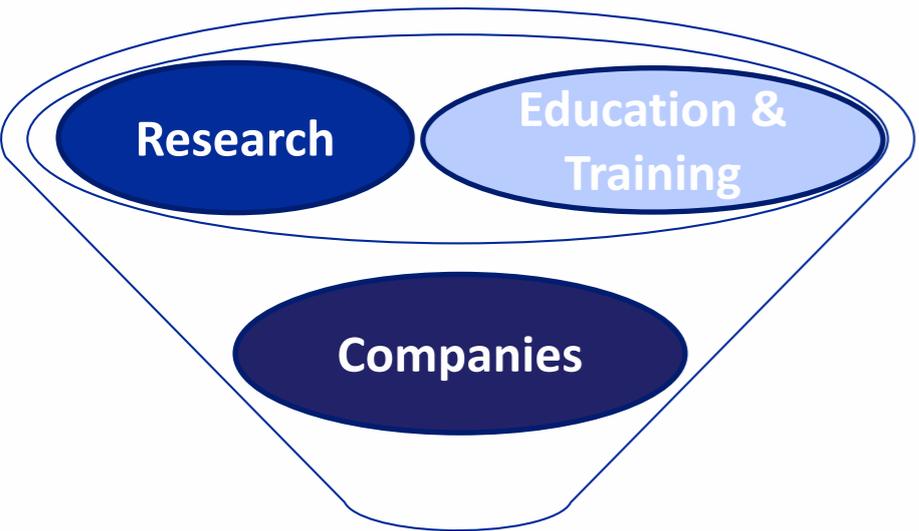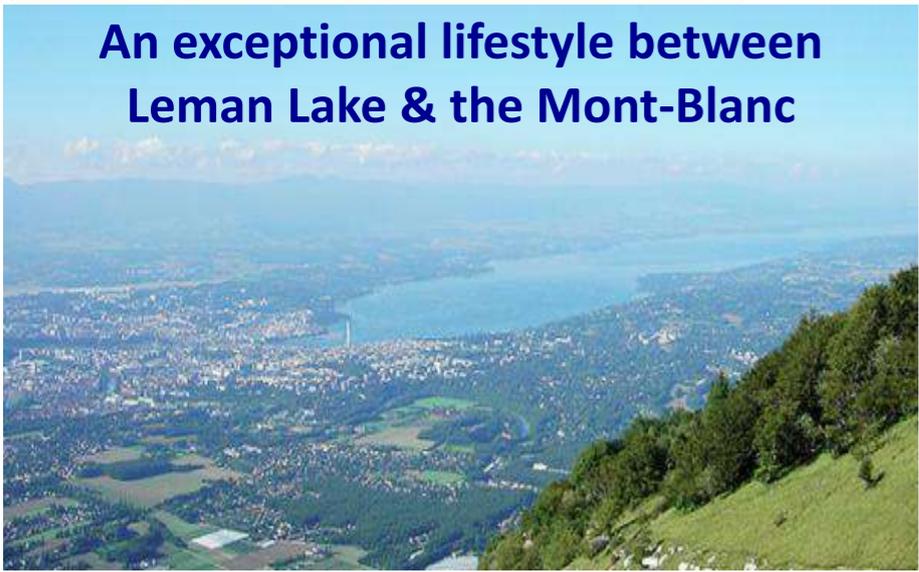
Innovation & job opportunities

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PORTE SUD DE GENÈVE

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APIMEDIA
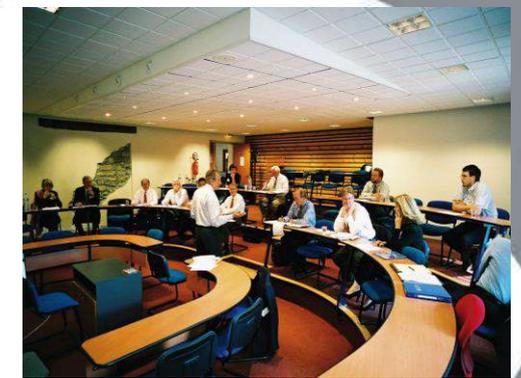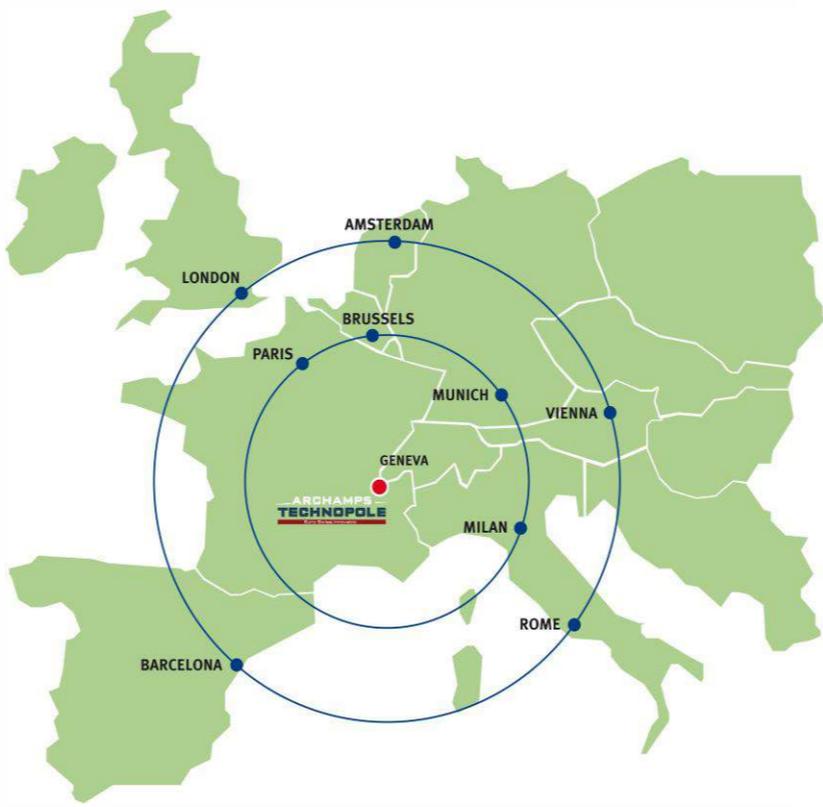
CONSULTING
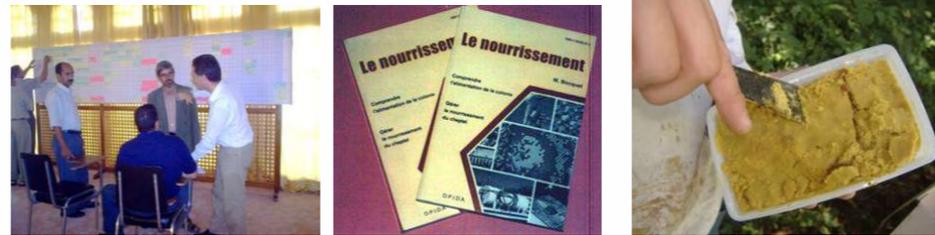
COACHING

BIO INDICATORS

LABORATORY

SPECIFIC TOOLS

APIARY

- Breeders demand «how to integrate breeding in bee farms».

- Business plans on bee farms in France in order to get subsidies.

- Coaching professionnal beekeepers on « How to take decisions and act in uncertainity » => losses/honey flow/climate...

- Evaluation of the value of bee farms to be sold

- Numerous inquiries or bee farm diagnosis to get technico-economic references.

=> techno-economic modelization of bee farms.

Are we able to build a provisional model

of the bee-farm that can be effectively

used by the beekeeper

in his daily management ?
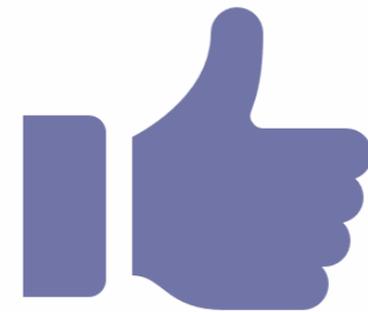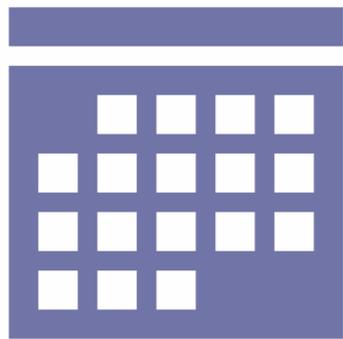
Build a provisional timetable based on main honey flows

For each task, link technical, economical or time values

Identify and resolve specific issues of the beekeeper

Example

Paper version

Application

Technical point

Cash flow

Income

|		janvier	Fevrier	mars	avril	mai	juin	juillet	août	septembre	octobre	novembre	décembre
BANQUE DEBUT		12400	10637,96	8960,92	13743,88	9206,84	6173,38	8959,92	7066,46	6524	8055,54	9412,08	3790,62
Loyer/charges	-6000	-500	-500	-500	-500	-500	-500	-500	-500	-500	-500	-500	-500
prelev, privé	-6000	-500	-500	-500	-500	-500	-500	-500	-500	-500	-500	-500	-500
	0	0	0	0	0	0	0	0	0	0	0	0	0
epargne	-1200	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100
frais bancaires	180	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15	-15
gasoil	2200	-100	-100	-200	-250	-250	-250	-250	-200	-200	-200	-100	-100
Emprunt 1	-214,32	-53,58	-53,58	-53,58	-53,58	0	0	0	0	0	0	0	0
Emprunt 2	-1548	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129
	0												
vacances	-1100					-500				-600			
assurances	1013,52	-84,46	-84,46	-84,46	-84,46	-84,46	-84,46	-84,46	-84,46	-84,46	-84,46	-84,46	-84,46
travaux maison	0												

1	EBE prévisionnel HT	2017	2018	2019	2020	2021
30	Kiné		0	0	0	0
31	Nourrissement	220	550	1 375	3 438	8 594
32	Cire gauffrée		1 000	300	300	300
33	Petit equipement	6860	300	300	300	300
34	Produits traitement	180	432	648	972	1 458
35	Formations					
36	Concours Miel					
37	Syndicats					
38	Assurances					
39	Hotel					
40	Marché, foires	500	1 500	1500	1500	1500
41	Impots taxes					
42	MSA	36	36	3 000	3000	3000
43	Intérêts emprunts	500	500	500	500	500
44	Total des charges (hors amortissements)	10 726	8 166	14 723	18 005	24 146
45	Excédent Brut d'Exploitation	-3 026	30 334	33 377	35 595	37 954
46	EBE/PRODUITS	-39%	79%	69%	66%	61%

Applications

Time management
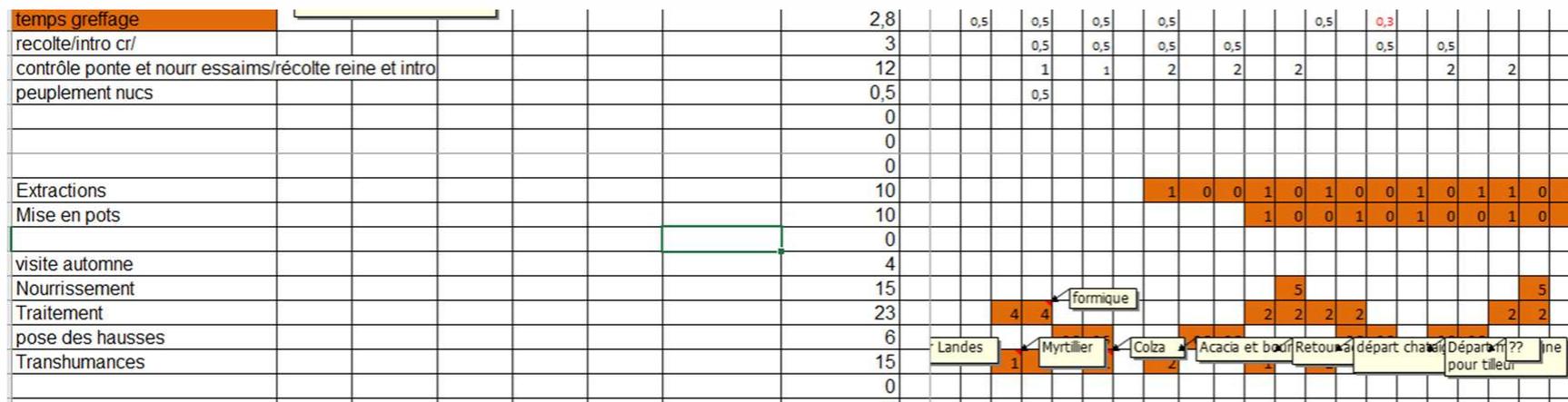
Nettoyage ruches perdues	80
Visites diverses	320
Elevage	150
Nourrissement	30
Entretien ruchers	30
Récolte et conditionnement	120
Livraison	20
Administratif	50
Total des heures	**800**

Selection plan
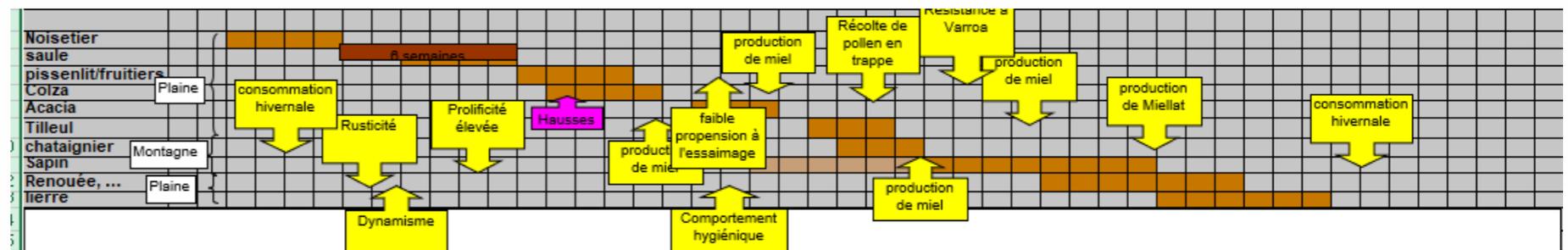
Commercial planning

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All beekeepers are able to built a model

- Used with future beekeepers, it permits to build an accurate business plan

- Each beekeeper built is model his own way

- Each beekeeper uses the tool for his own purpose

- Paper models can be used and permit good results, Spreadsheet models can provide more complex models to make simulations

Modelling the bee farm can improve dramatically its efficiency bringing out limitations or potentials

- Used to anticipate the next season, helping the beekeeper in taking the main decisions

- Permits to evaluate the breeding programm and its results

- Is rather precise in the evaluation of the number of colonies ready for production at different times of the year

- Permits to delay investisments and pay more attention to the bee stock

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Worked on a supervised group approach, it permits to confront difficulties between beekeepers

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  - Used to decipher what occured last season and what could have been done, sharing the experiences

  - Used in collective projects to discuss the different options

Modelling the bee farm permits simulations.

- Evaluating the technical or economical or organisationale consequences of some decisions

- Seeing the impact of alternative solutions (buying or producing his own queens or nucs, honey vs pollination).

Conclusions

1) Beekeepers are able to build a simple model of their bee farms in about 1 day of work and a more complex one in 2 days with the appropriate coaching.

2) Modelling the bee farm can improve dramatically its efficiency putting in evidence the limiting factors, and permitting single simulations.

3) Worked on a supervised group approach, it permits to confront difficulties between beekeepers and help them to improve their management.

Integrating this tool in a portable application

- instrumented colonies data
- colony monitoring
- phenology assessement
- link to accounting

Developing group analyses

- To improve the techical lever of a group
- To built techo-economic references
- Linked to training

Using it in reseach programs

- practices evaluation
- Models building
- optimization

Week 1 and 2

Weeks 3 to 12

Weeks 13 to 17

Weeks 19 to 23

Weeks 24 to 29

Weeks 30 to 33

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