Socio-economic evaluation of mitigation programs in the area of the Swiss Midland Lakes

COST Action 869, Working Group 4:

Evaluation of projects in example areas:

The Swiss Midland Lakes.

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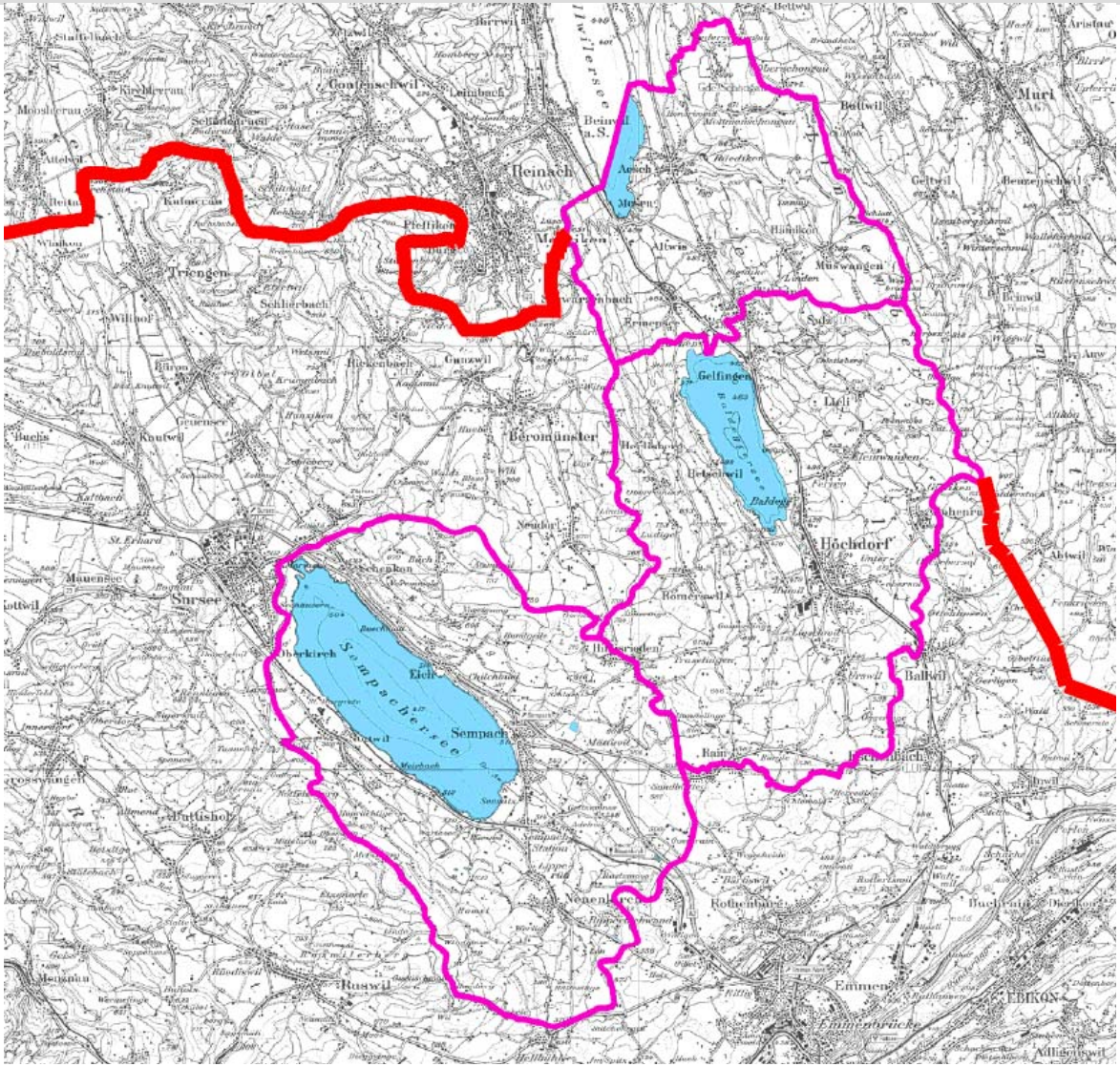
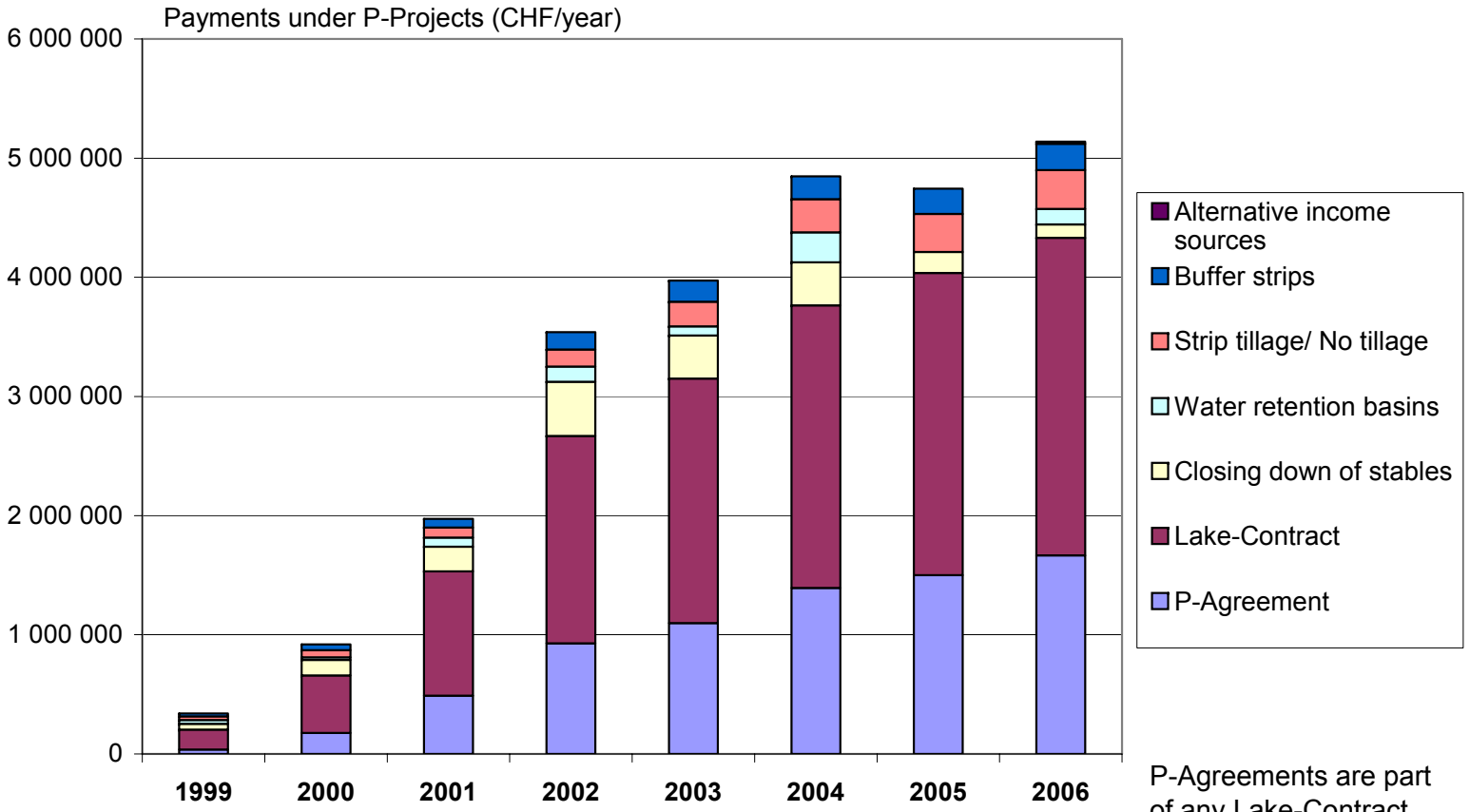
Districts Hochdorf and Sursee

http://de.wikipedia.org/wiki/Bild:Karte_Kanton_Luzern_Bezirke.png

Catchments



Payments for Phosphorus-Projects 1999-2006



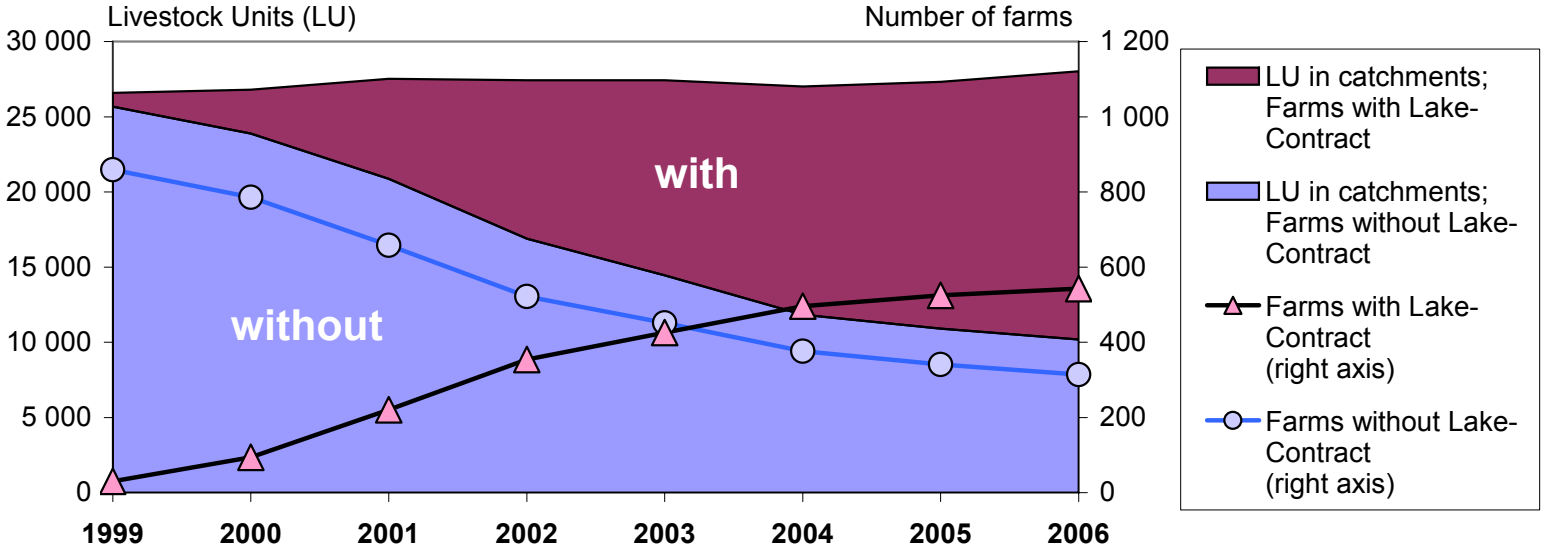
Data LAWA; elaboration bemepro

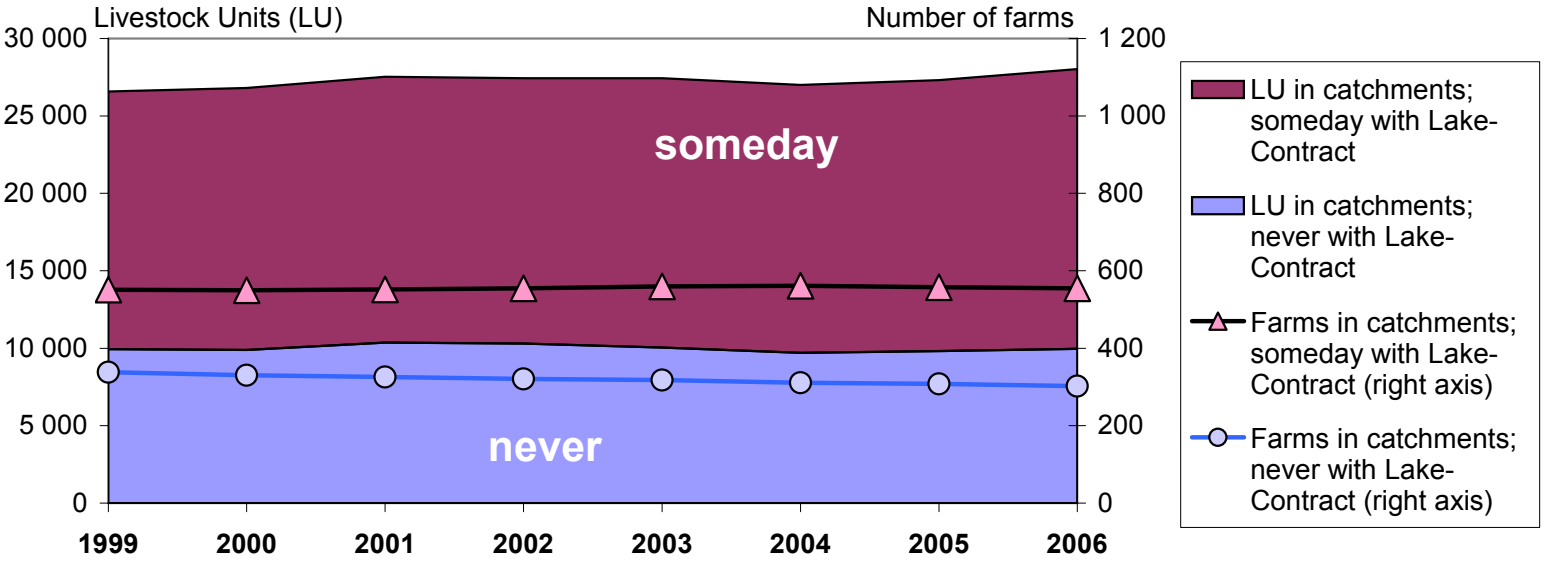
Participants in Phosphorus-Projects 1999-2006

Number of Farms in districts Sursee&Hochdorf	1 999	2 000	2 001	2 002	2 003	2 004	2 005	2 006
outside catchment	1 477	1 457	1 447	1 423	1 408	1 379	1 379	1 349
in catchment	889	880	878	876	878	872	866	857
total	2 366	2 337	2 325	2 299	2 286	2 251	2 245	2 206
With payments under P-projects	85	185	333	478	527	586	603	615
share (100% all farms in catchment)	10%	21%	38%	55%	60%	67%	70%	72%
With payments for Lake-Contract	31	95	222	360	427	496	525	544
share (100% all farms in catchment)	3%	11%	25%	41%	49%	57%	61%	63%

- Participation increased steadily over time
- Approx. 550 of 850 farms have a Lake-Contracts in 2006

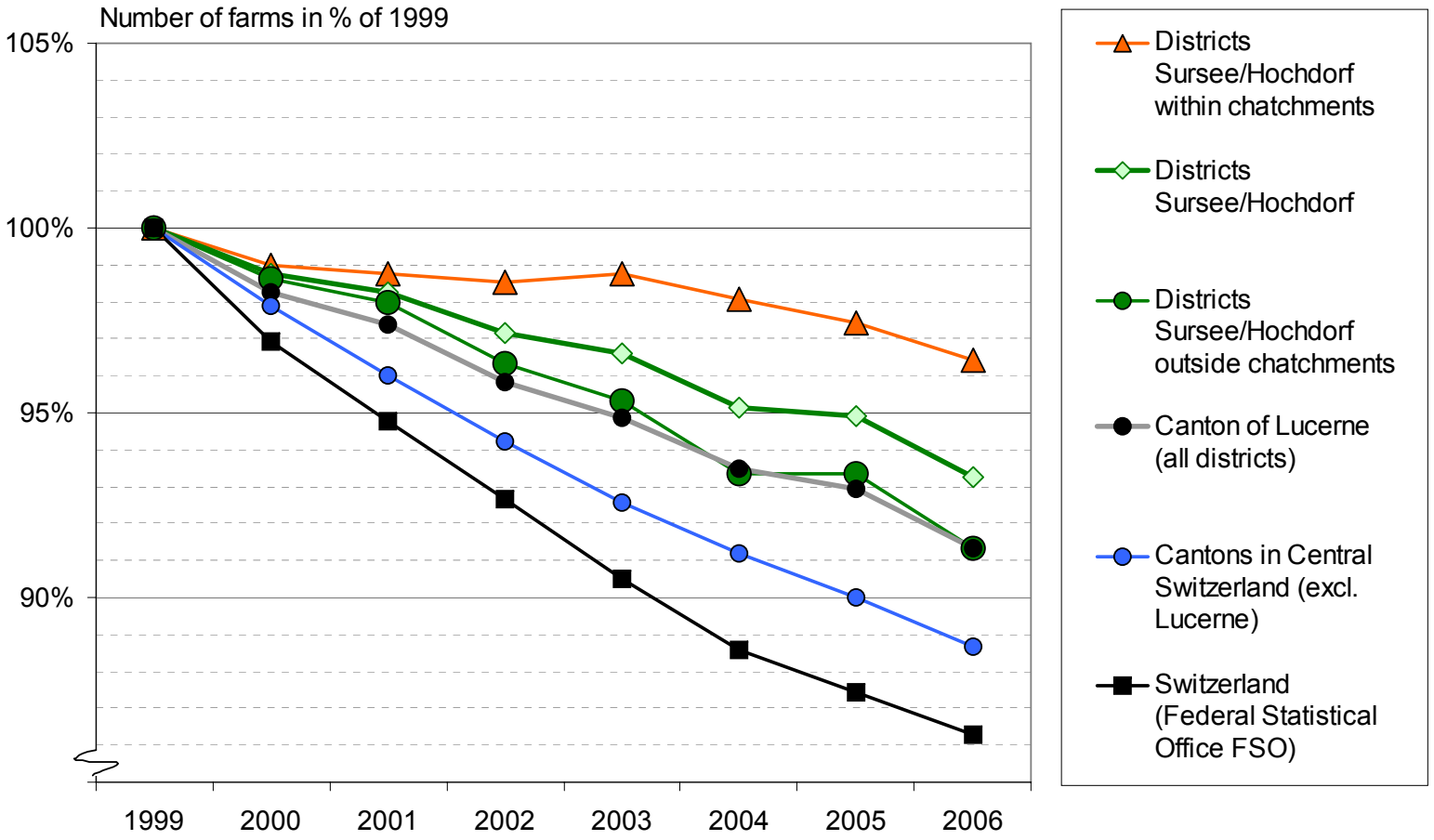
Farms with/without a Lake-Contract





Data LAWA; elaboration bemepro

Development of the number of farms by regions



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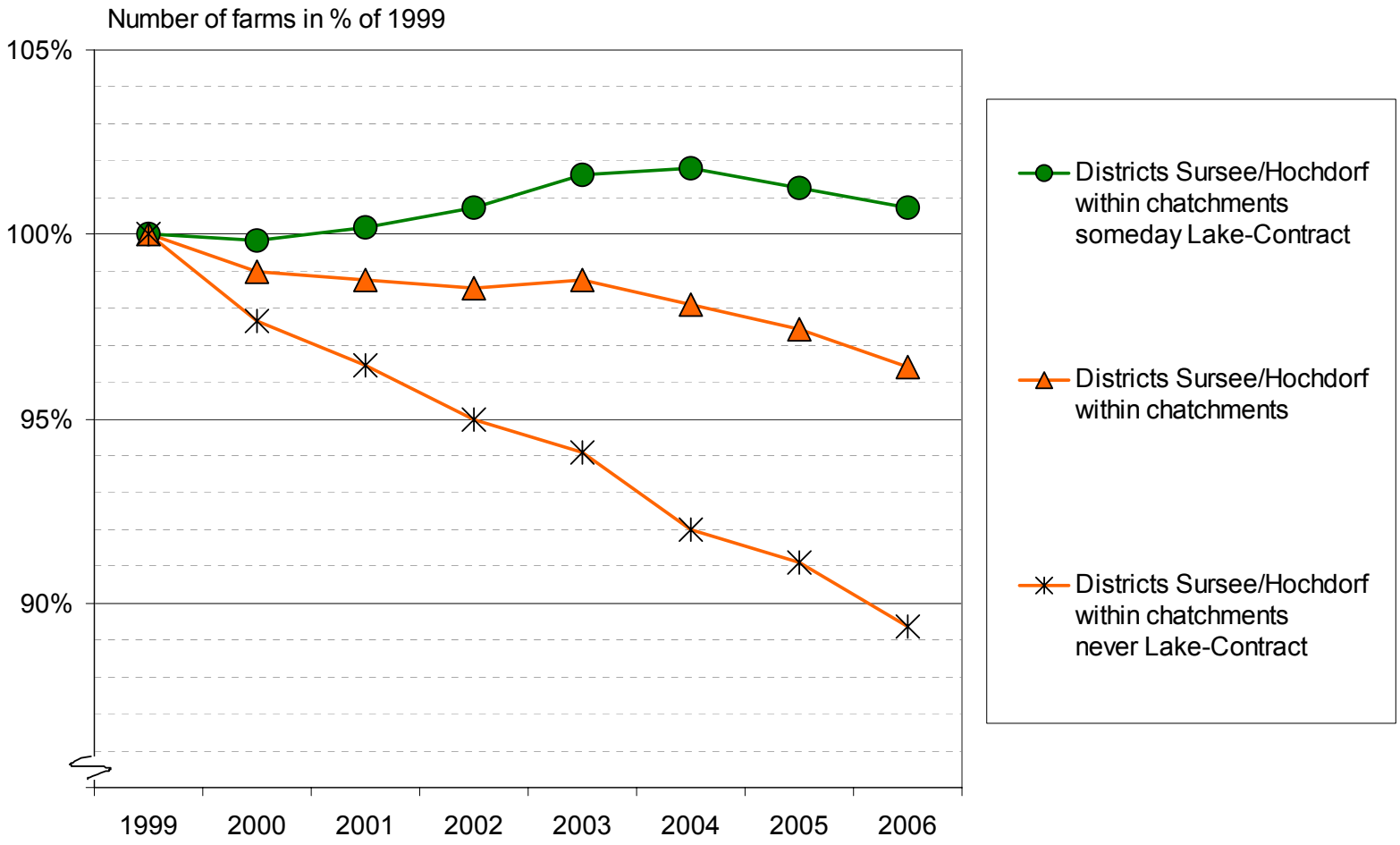
Development of the number of farms by participation in P-projects



Data LAWA; elaboration bemepro

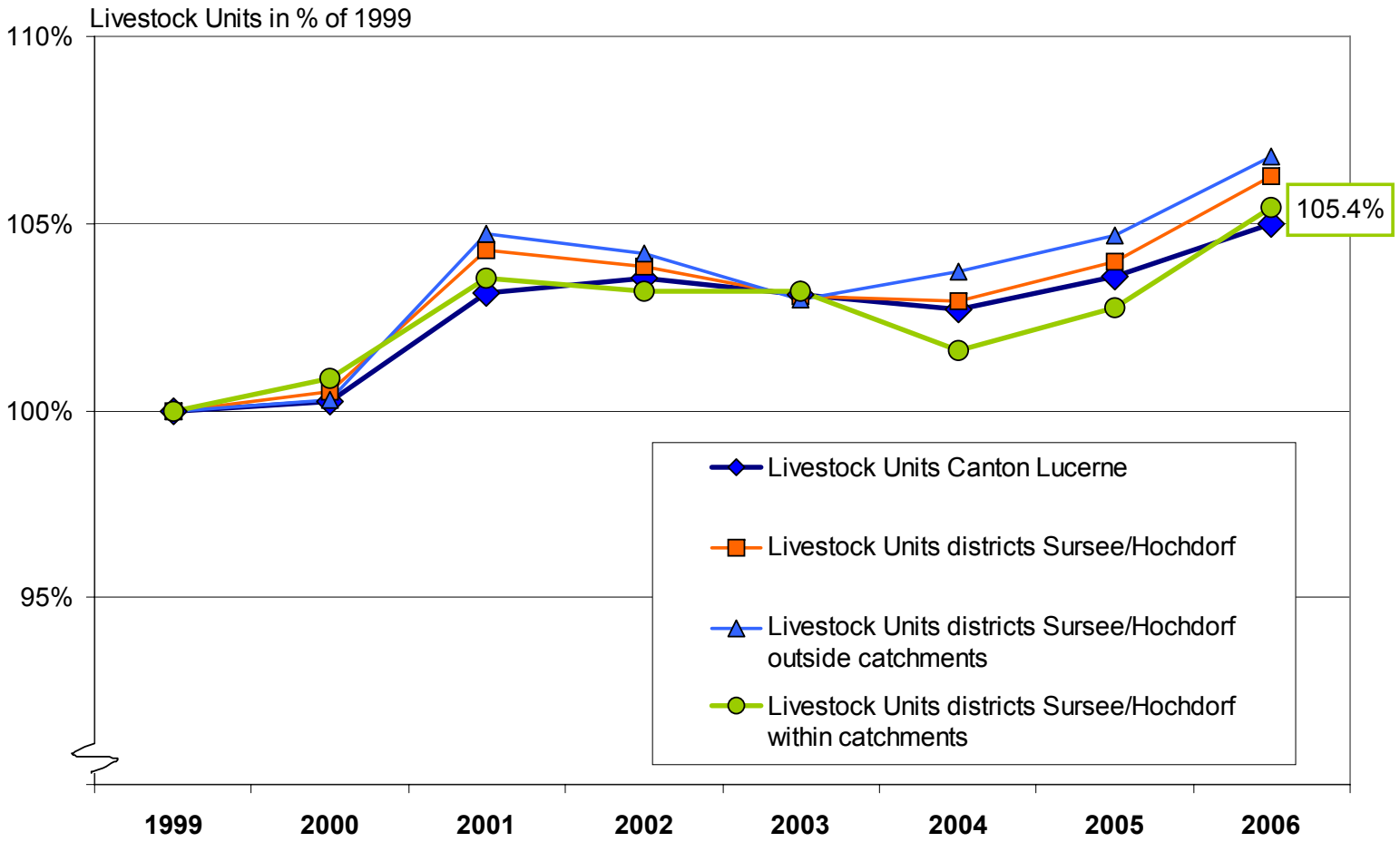
Development of the number of farms: conclusions

Structural change in terms of the decrease of the number of farms is

- Slower in the Canton of Lucerne compared to Swiss average
- Slower within the catchments of the midland lakes than outside
- Null for the number of farms that someday have a Lake-Contract

➢ There is evidence but no proof, that P-Projects slow down structural change.

Development of livestock by regions I



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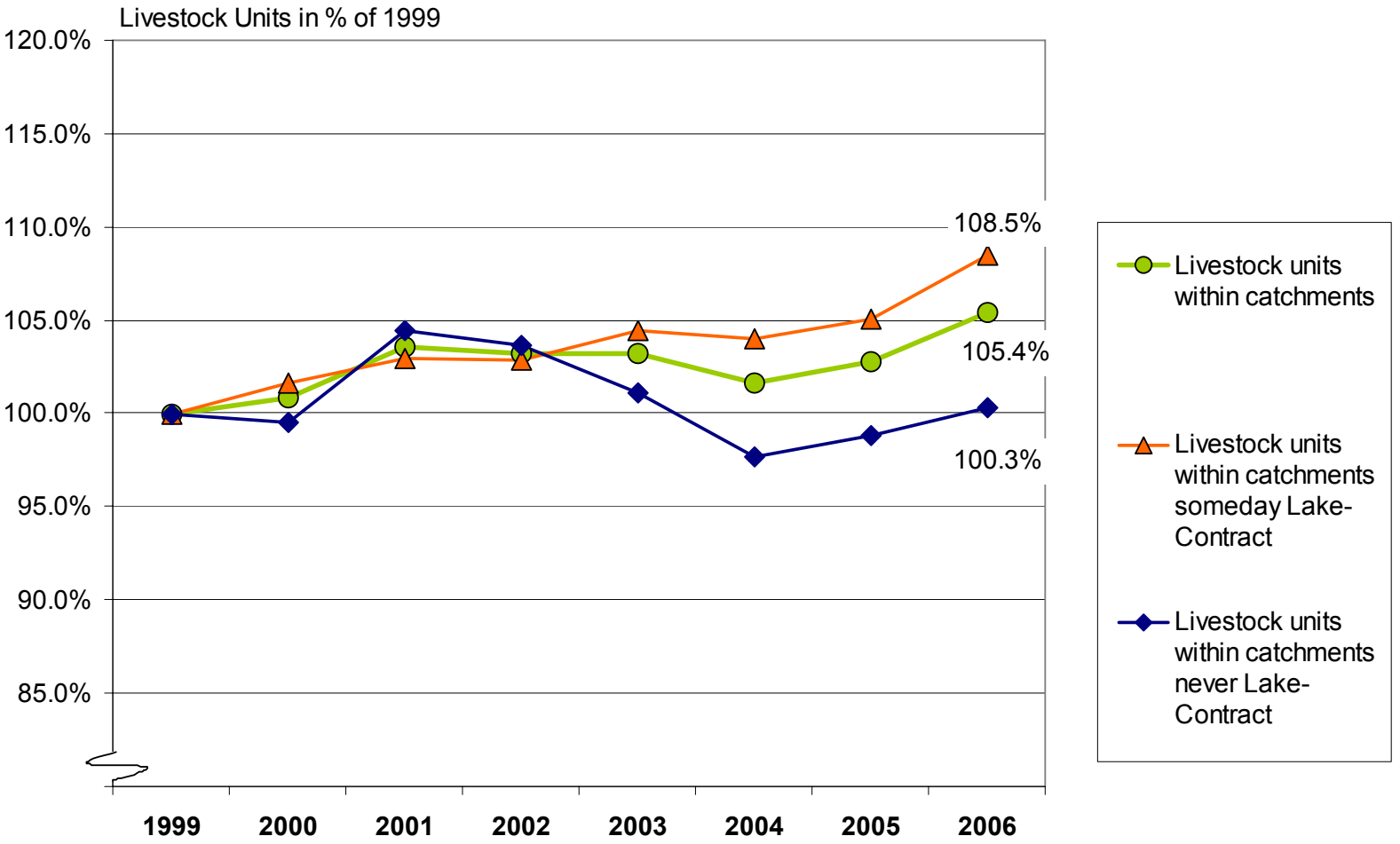
Development of livestock by regions II



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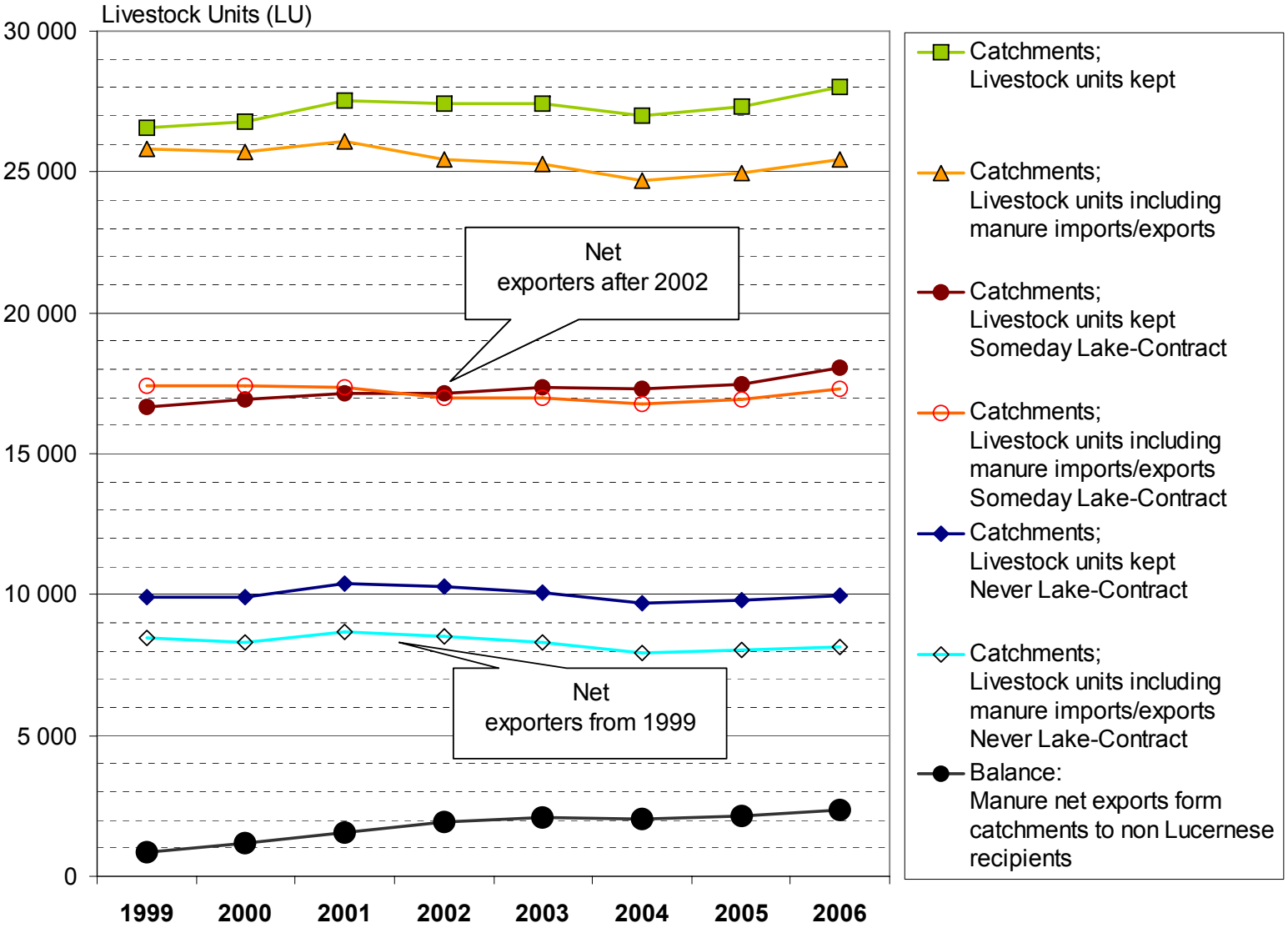
Livestock in catchments including manure imports/exports



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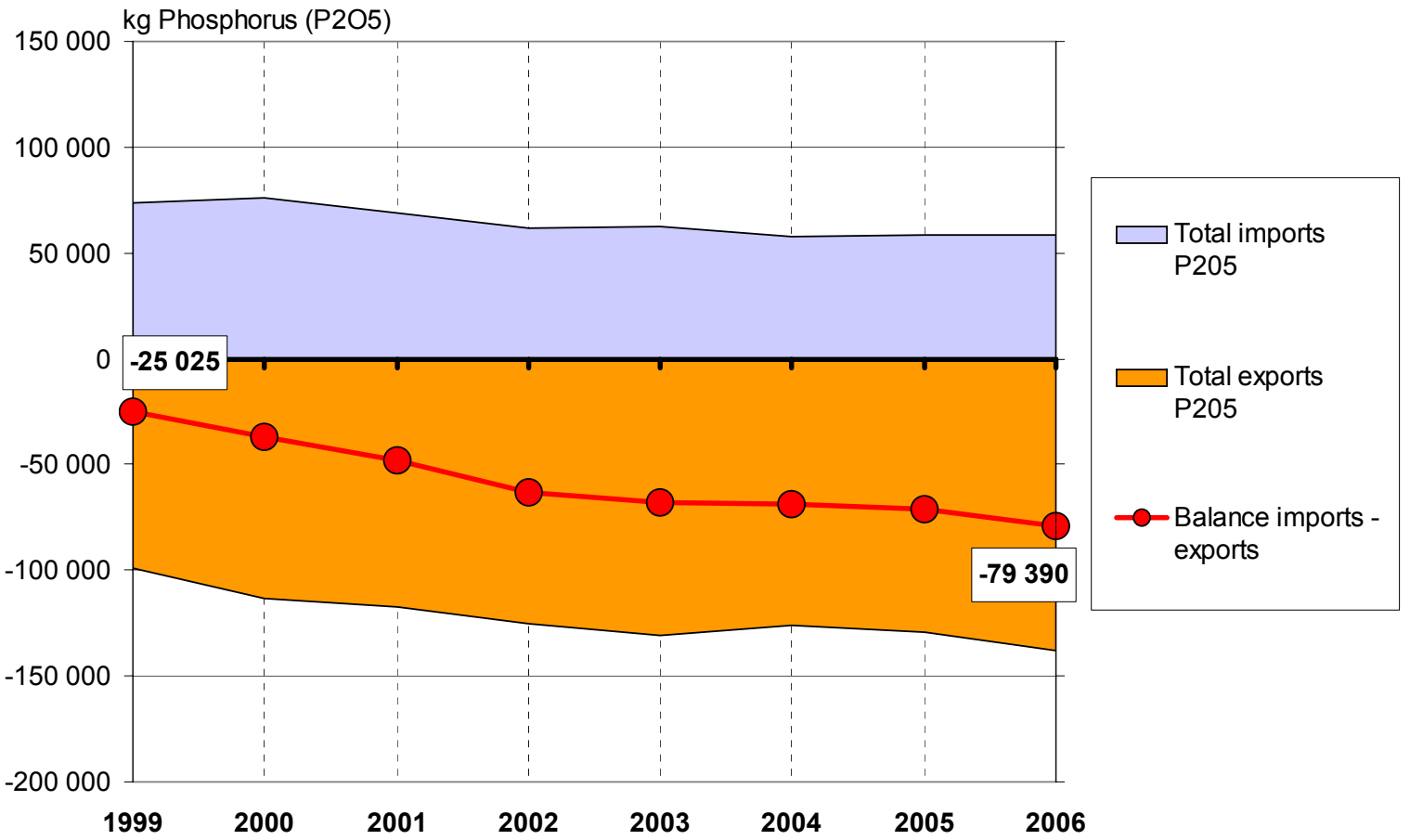
Manure imports/exports in kg Phosphorus in catchments



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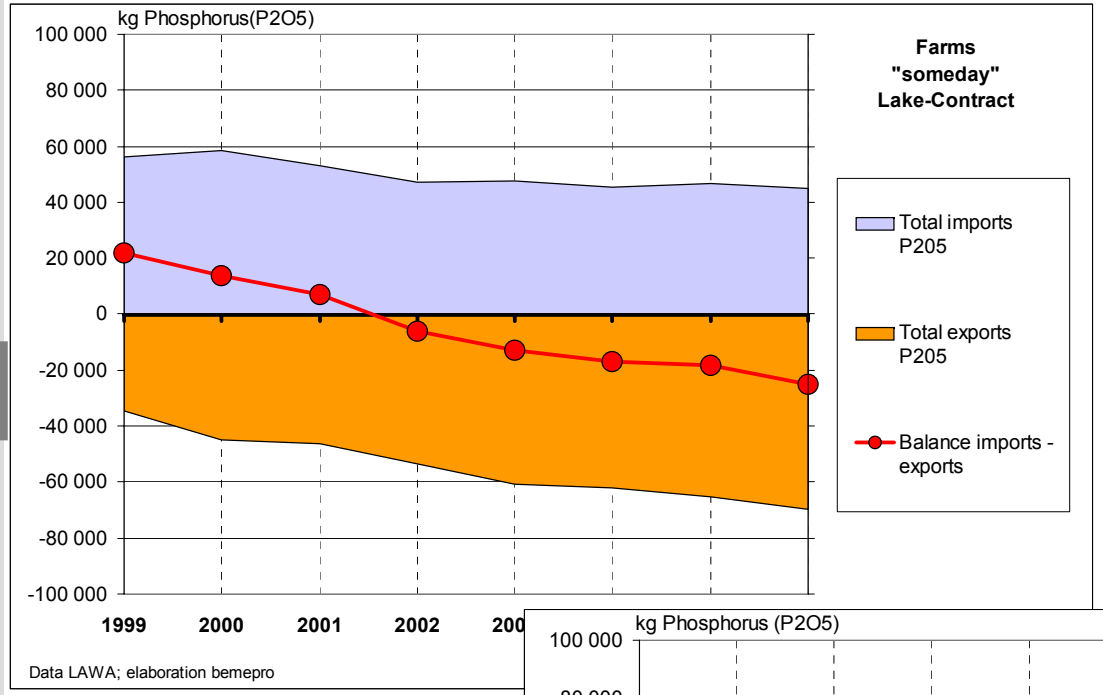
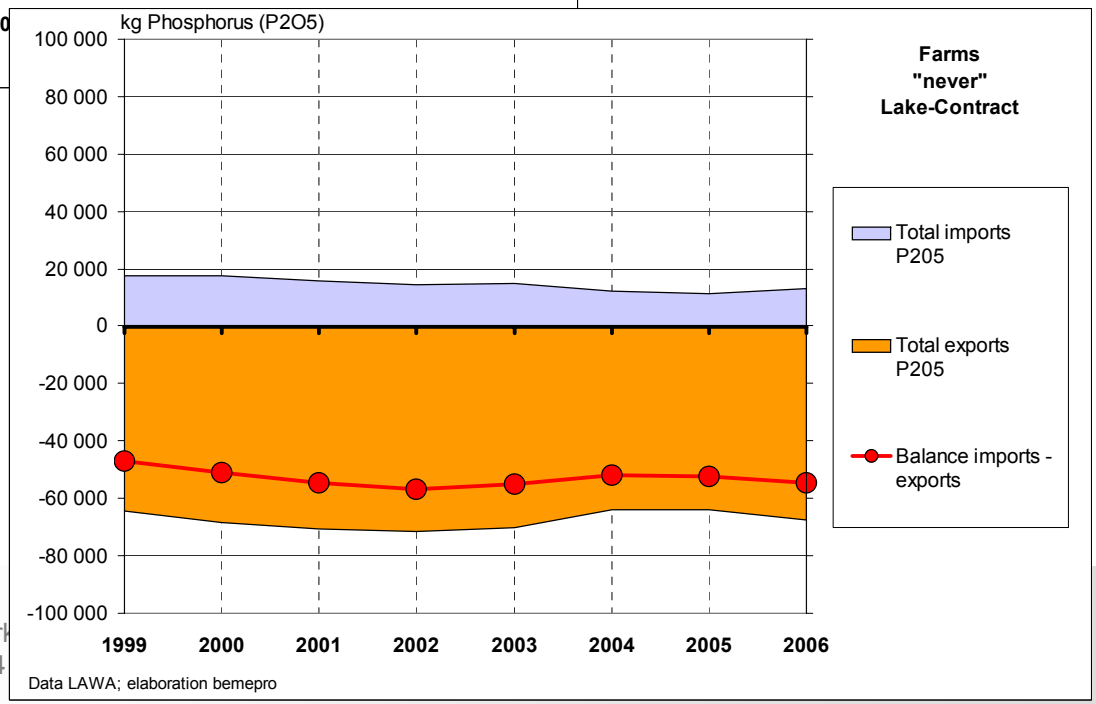
Manure imports/exports by participation in Lake-Contract



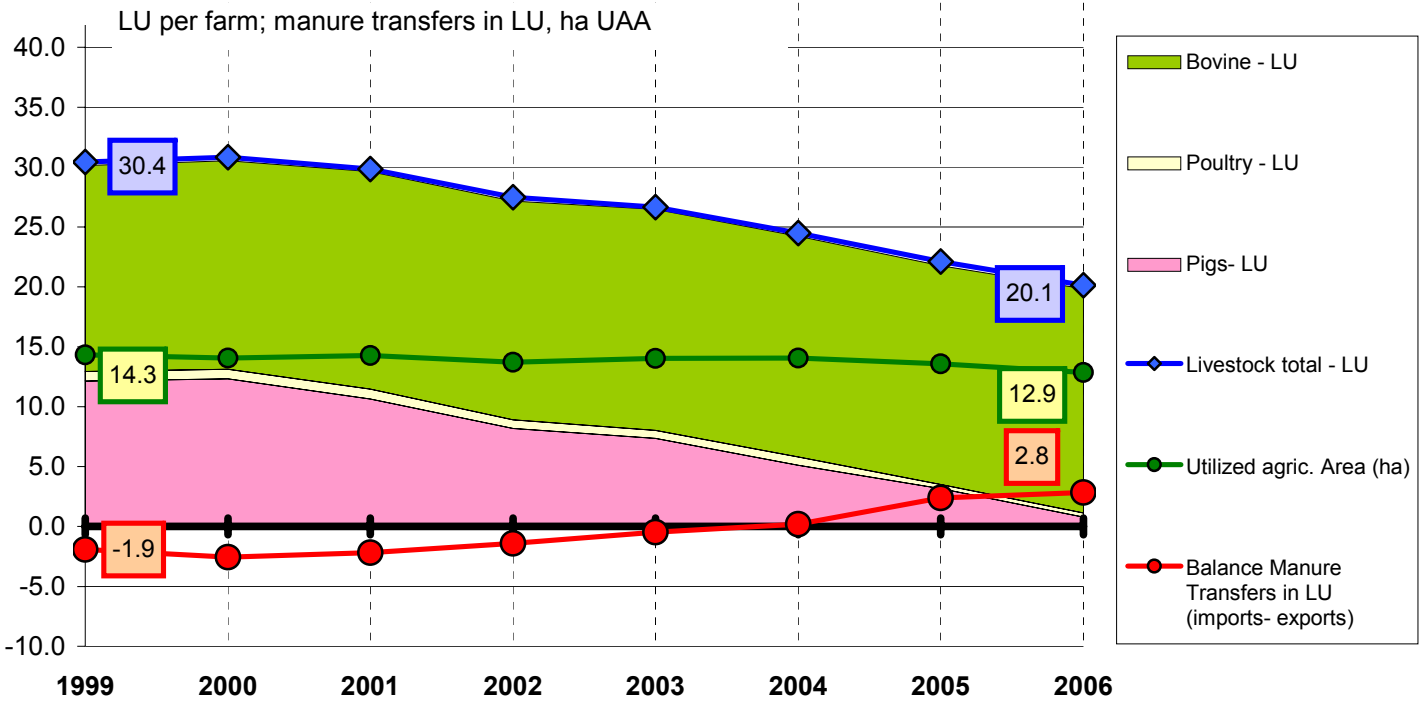


Manure transfers

- Farms in the catchments triple their net exports of Phosphorus between 1999 and 2006.
- The increase in net exports ist mainly based on recipients outside the canton of Lucerne.
- For the overall evolution of livestock, manure transfers and the regional phosphorus balance, the introduction of N/P-reduced feed plays an important role.

Closing down of stables I

1999	2000	2001	2002	2003	2004	2005	2006	< Year
50	50	50	50	52	52	52	52	< nb. of farms



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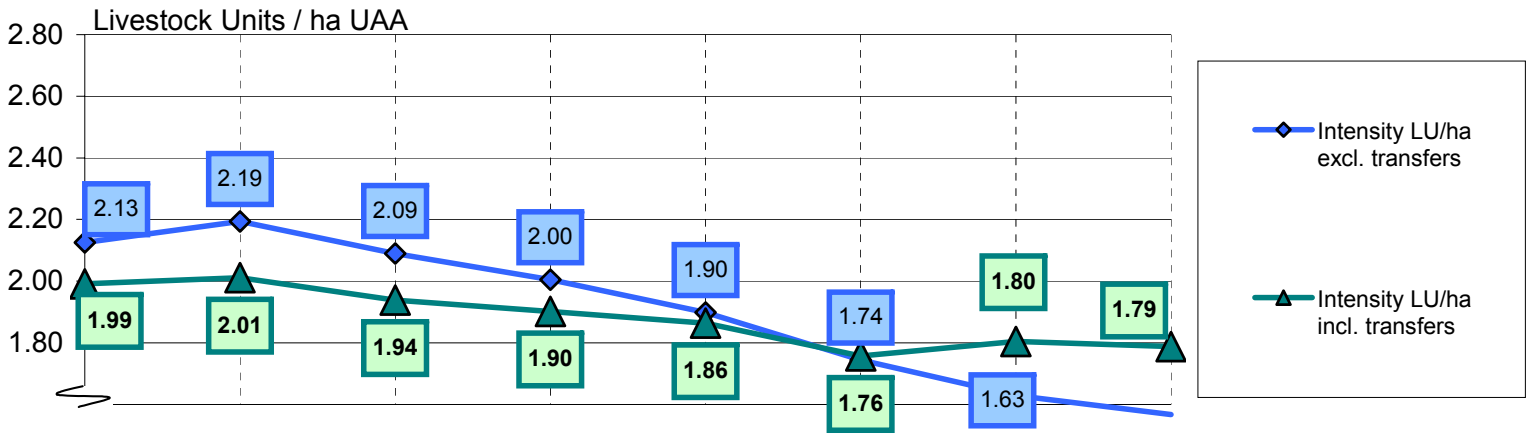
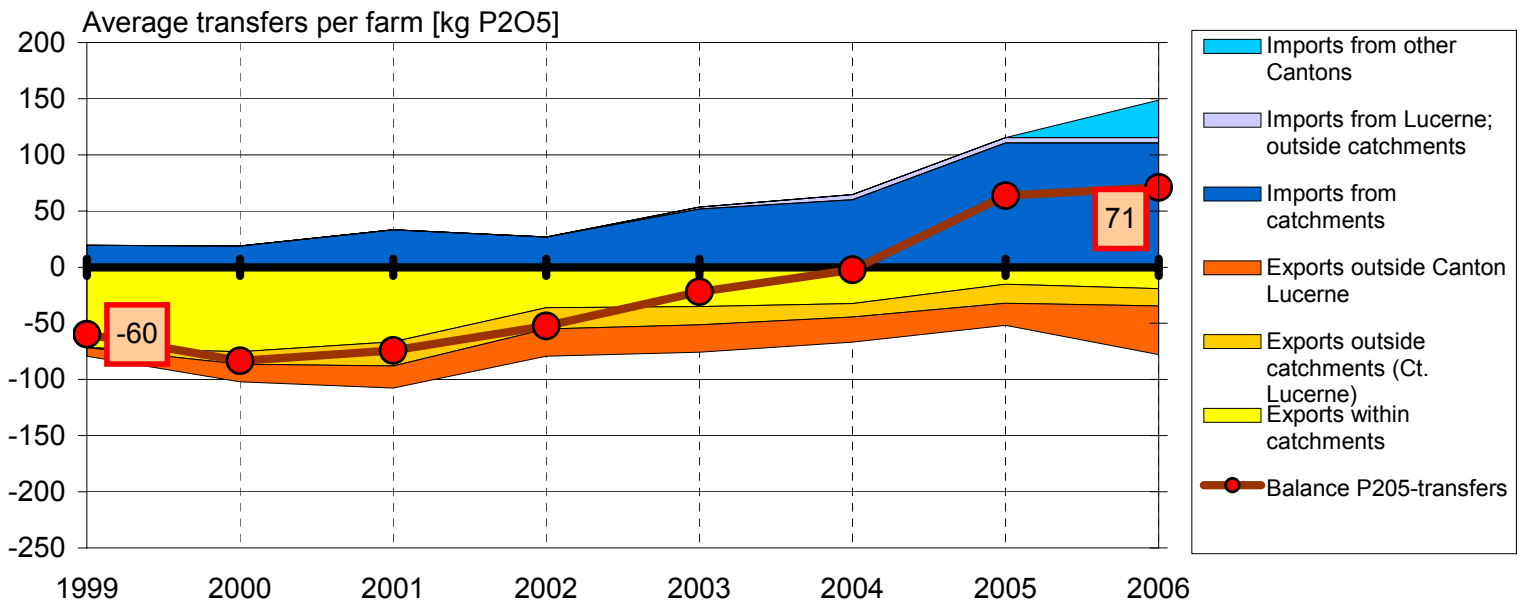
Closing down of stables II





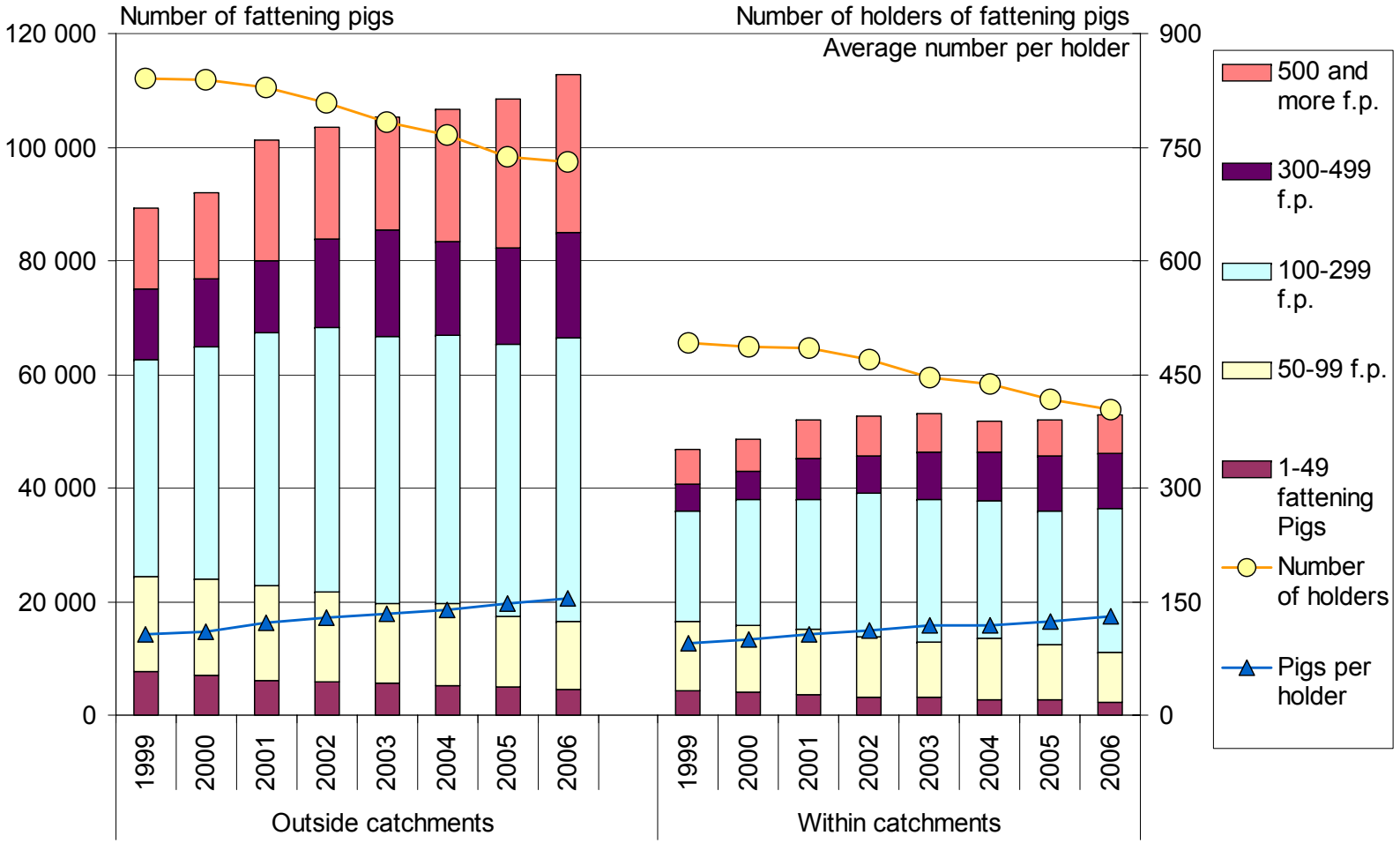
Data LAWA; elaboration bemepro

Closing down of stables III

- The positive effects of closed down stables are reduced by the fact that the farms concerned increase the imports of manure by 300 equivalents of livestock units (LU), compared to the 800 LU „closed down“.

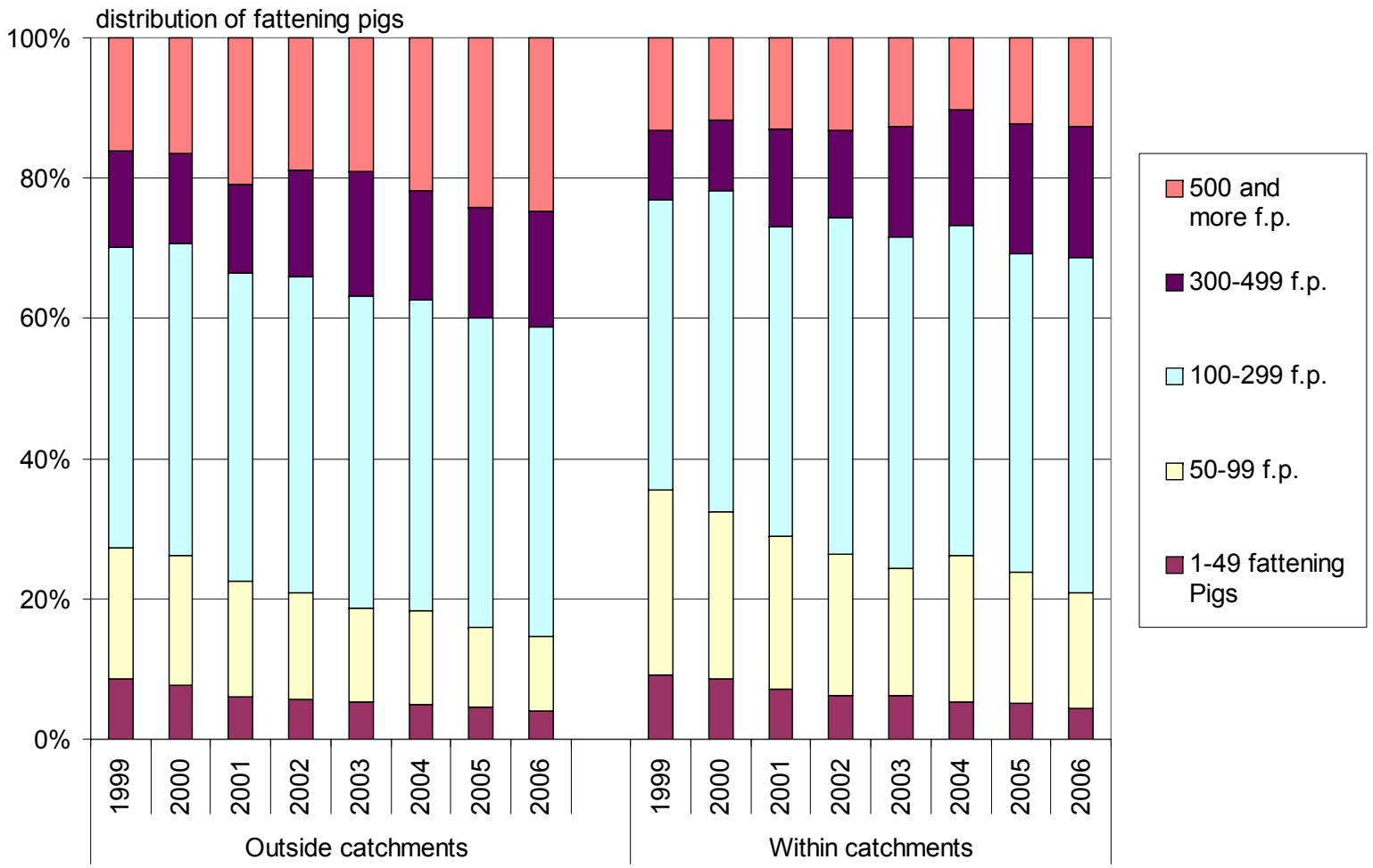
- Closing down of stables is an ordinary process also oberserved outside the project area. The subsidies partly produce windfall gains.

Production costs and sizes of production branches: Fattening pigs



Data LAWA; elaboration bemepro

Production costs and sizes of production branches: Fattening pigs



Data LAWA; elaboration bemepro

Production costs and sizes of production branches

- Outside the catchments, more often holders with large production branches invest in further growth
- Within the catchments, size structures are less favorable/competitive in 1999 and more often farms with some flexibilty in the nutrient balance invest in pig production. The disadvantages persist.
- P-Projects might constitute an wrong incentive from a microeconomic perspective, but proof is not possible.

Summary and conclusions

1. In the catchments of the Midland lakes, the development of farm structures (number, farm size, size structure of main production branches) is slow compared to the regions around. This increases or causes microeconomic disadvantages (production costs). Despite clear proof missing, the analysis indicates that the phosphorus-projects are a major factor.

2. The phosphorus-projects have not reduced the number of livestock kept in the region but constitute a limitation to their expansion. As a major effect, the net-exports of manure from farms in the catchments have increased by a factor 3.

3. With the observed microeconomic disadvantages and a major part of the ecological effect depending on manure exports, the success of the projects are not guaranteed in the long run.

4. For future policies concerning water protection it is essential to clearly distinguish permanent payments for positive external effects from measures to eliminate a pollution problem. The latter must be temporary and the direction of the structural adjustment processes must be known and considered in design. This is the only way to assure that along with ecological improvements also economically sustainable structures can evolve.