Do organic farming practices lead to specific nutritive value of green fodder on upland dairy farms?

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organic farming in France implied :

- no mineral nitrogen fertilisation
- less than 5O % silage in dairy cow food
- grazing period obligation

AGRICULTURE BIOLOGIQUE

organic and conventional practices must be different

Does it lead to specific nutritive value of fodder?



- **24 grasslands surveyed during 5 years (2002-2006)**
- **12 in organic farming & 12 in conventional farming**
- **on dairy farms located in French semi-mountainous area**

112 herbage samples were collected (green fodder)

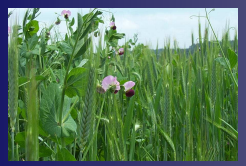
only 59 samples (34 organic & 25 conventional) were kept for this work

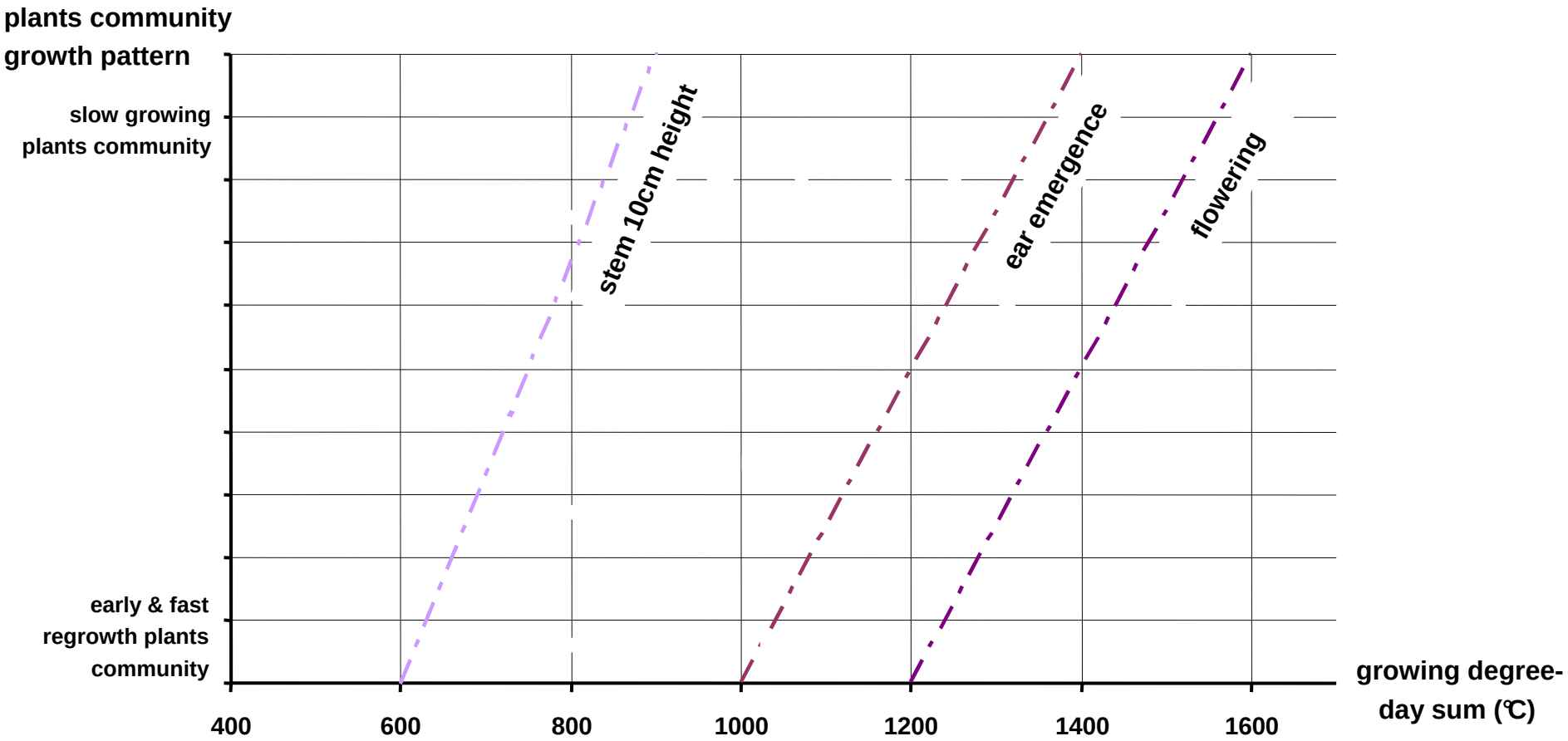


determine for each sample the phenological stage of the plant community

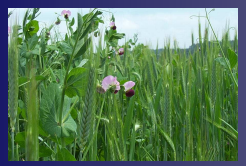
- **to be able to compare the samples**
- **because forage nutritive value decreases with the age of herbage**

According to the concept of functional diversity, we used the most dominant species and the growing degree-day sum to indicate the dynamics of growth of the plant community (Duru *et al.*, 2007, 2008, 2009).

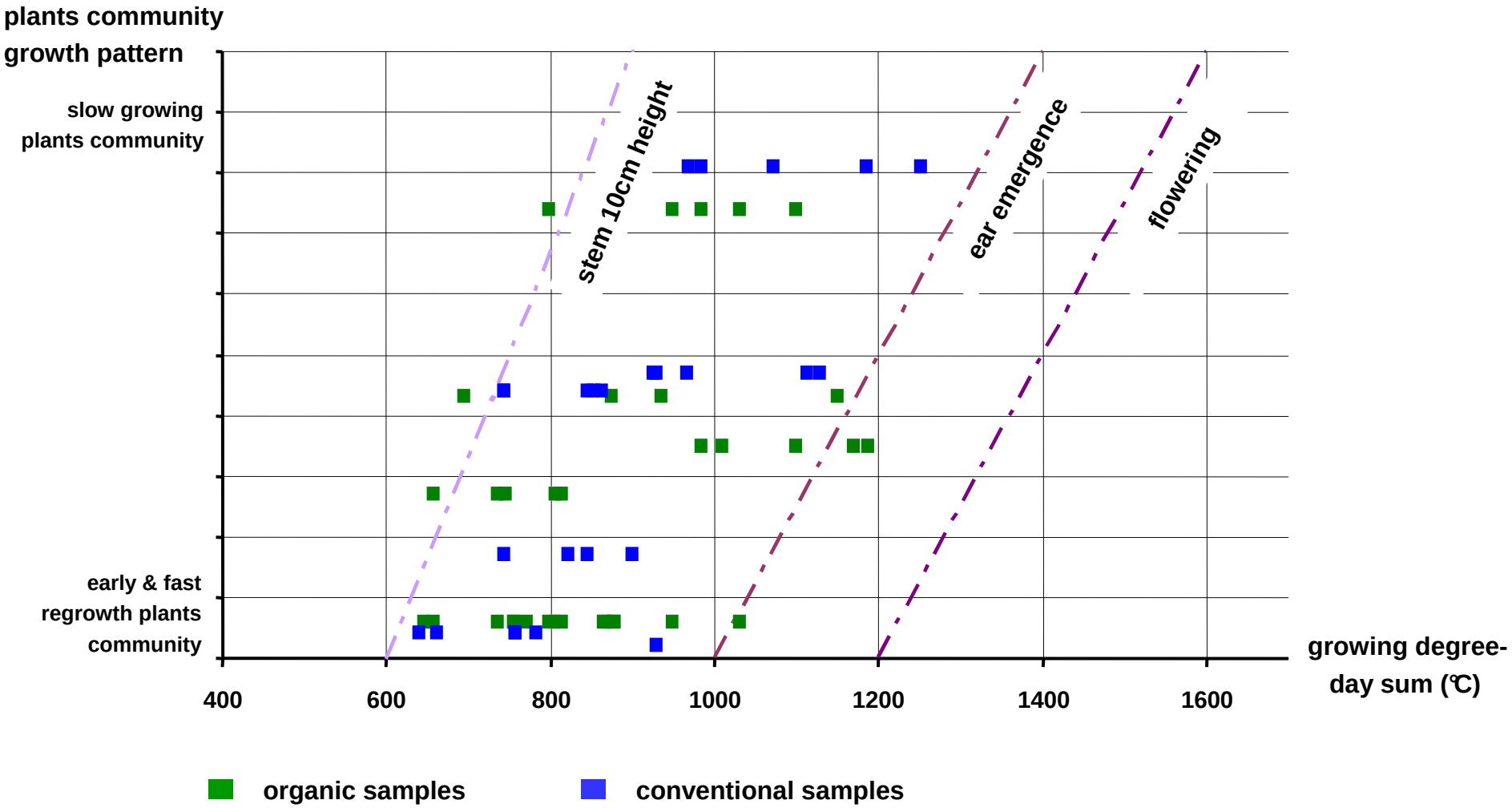


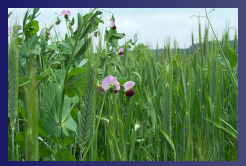


the growing degree-day sum is the daily mean temperature between 0℃ & 18℃ starting from the 1 st of February



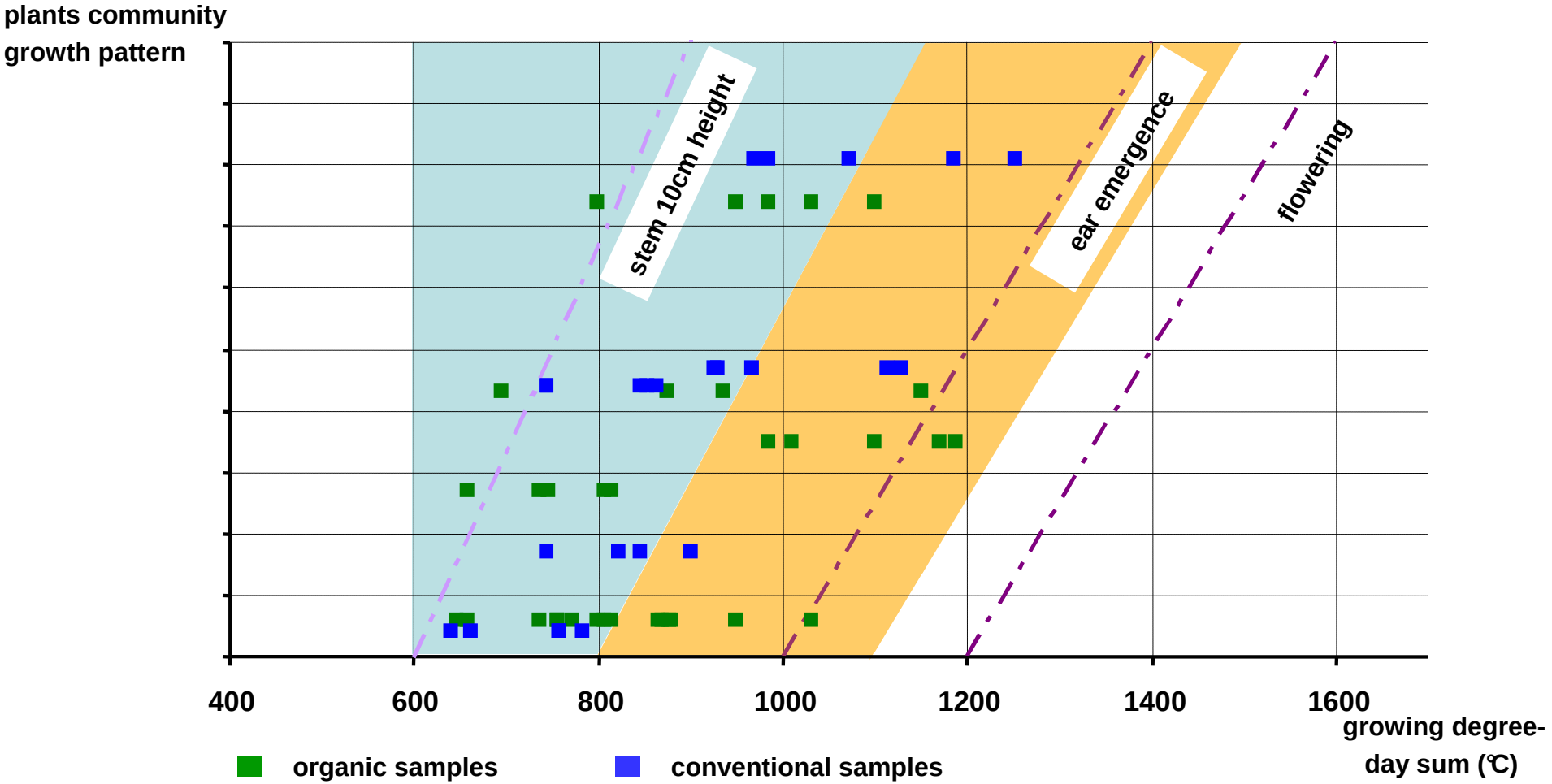
phenological stage of each sample at the harvest time





2 groups with samples at the same phenological stage

2



to compare the nutrive values

2

	early cut grasslands group		*late cut grasslands* group	
	conventional	organic	conventional	organic
number of samples	18	21	7	13
UFL (g/kgDM)	0,86	0,86	0,79	0,76
PDIE (g/kgDM)	83	85	76	77
PDIN (g/kgDM)	79	83	66	65
MM (g/kgDM)	84	84	75	73
K (g/kgDM)	29 b	25 a	23	22
P (g/kgDM)	2,96	3,10	2,74	2,82
legume %	6 a	20 b	5	17
grass %	80 b	63 a	80	70
forbs %	14	17	15	13

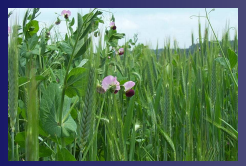
variance analyse – a, b: significative difference (5%)

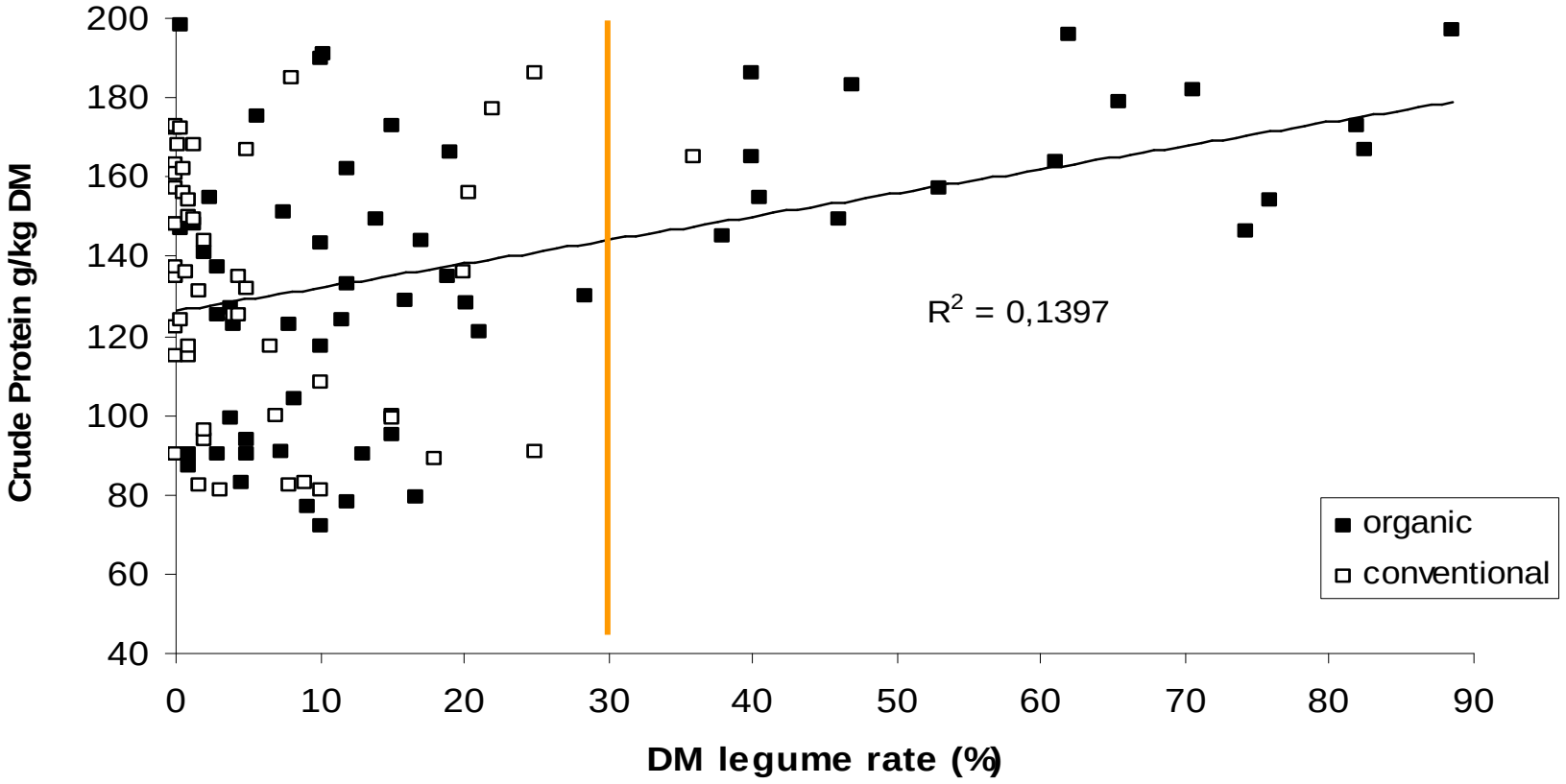


Results and discussion

no difference between nutritive value of organic green fodder and conventional green fodder

- the organic farming practices did not lead to a specific nutritive value of green fodder
- the legume rate was not linked with the fodder crude protein




Crude Protein g/kg DM
200
180
160
140
120
100
80
60
40
0
10
20
30
40
50
60
70
80
90
DM legume rate (%)
R2 = 0,1397
organic
conventional

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- the organic farming practices did not lead to a specific nutritive value of green fodder
- the legume rate was not linked with the fodder crude protein
- the crude protein value is always high when the legume rate is over 30 %

green fodder *vs* stored fodder?

- difference between silage and barn-dried hay?