

# ICT in agrarian sector of the CR

## ICT v agrárním sektoru ČR

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**Abstract:** The fact that the development of information and communication technologies (ICT) is a key factor of development of individuals, regions, sectors and whole countries is well known at the beginning of the 21<sup>st</sup> century. The real situation of ICT utilization is very different in particular sections and it fails to reach standards that we would expect. The sphere of the agrarian sector of the Czech Republic is a very good example. The Information and Consulting Centre FEM at the University of Agriculture in Prague (IPC) has been participating on research of the utilization ICT in agriculture for three years. According to the latest data from July 2002, 55% of agrarian enterprises are connected to the Internet, which is much less than in other sectors.

**Keywords:** ICT, Internet, portal, agriculture, agrarian sector, information

**Abstrakt:** Skutečnost, že rozvoj informačních a komunikačních technologií (ICT) je na počátku 21. století klíčovým faktorem rozvoje jednotlivců, regionů, odvětví a celých států, je všeobecně uznávaná. Reálný stav využití ICT v jednotlivých oblastech je však velice různý a často nedosahuje standardů, které bychom očekávali. Oblast agrárního sektoru České republiky je toho příkladem. Informační a poradenské centrum PEF na České zemědělské univerzitě v Praze (IPC) se již třetím rokem podílí na průzkumu o využití ICT v zemědělství. Podle nejnovějších údajů z července 2002 je k internetu připojeno 55 % zemědělských podniků, což je výrazně méně než v jiných odvětvích.

**Klíčová slova:** ICT, Internet, portál, zemědělství, agrární sektor, informace

### INTERNET IN AGRARIAN SECTOR OF THE CZECH REPUBLIC

In connection with the agrarian sector, we can claim that all characteristics and principals of ICT utilization are generally held. But certain specific characteristics of this environment are showing that and there is definitely a development time lag caused by conditions in this sector.

After charting the situation on the field of agrarian informatics we can say that nobody dealt with the problematic of Internet technologies till 1999. There was not any research of ICT in the agrarian resort. On the basis of this very unsatisfactory situation in this resort, the Information and Consulting Centre FEM, CUA in terms of the project AGRIS solution in cooperation with other partners prepared and participated on a wide research of many companies in agrarian sector. That was in the period from April to June 2000. The main goal of this research was the utilization of information and communication technologies in agrarian concerns in the Czech Republic. The research was performed by a form of telemarketing of agrarian concerns from the Czech Republic. This telemarketing was addressed to all enterprises whose minimum area is 100 hectares or enterprises reaching at least 100 BCU (Big Cattle Unit). The results have been obtained from a sample of companies that represent over 70% of the arable land in the Czech Republic (Table 1).

The whole research has been repeated in the following 2 years, 2001 and 2002. This research has been performed

by combination of 2 methods (questionnaire form and telemarketing) since 2001 – (vide supplement for the questionnaire).

This combination helped with the extending of the sample of agrarian companies and consequently increasing of arable land coverage up to 75%. Due to the importance and size of the research, it is supposed to continue in following years.

The number of respondents and their share in arable land is presented in Table 1. Arable land data are used as a result of Czech Statistical Office (Agrocensus 2001), statistical department of agricultural, forestry and environment.

In following tables, there are presented summarized results of Internet utilization research performed by the Information and Consulting Center FEM and Education Institute (IVV) in the period of 2000–2002. IVV made his research of Internet utilization on visitors of agrarian exhibitions Techagro and Země živitelka.

Table 1. Number of respondents

Year	No. of respondents	Arable land coverage (%)
2000	2 026	70.3
2001	2 546	75.1
2002	2 587	75.2

Source: IPC – AGRIS

IPC – AGRIS researches offer the results of Internet access development for the whole monitored period as it is evident in Table 2. IPC – AGRIS research (questionnaire form and telemarketing) is the only one that has been continuously performed in this period.

If we compare results of this research with results of the Internet utilization in small-scale and middle enterprises in other resorts, we can conclude that the use of Internet in agriculture is much lower, nevertheless we can also see a really fast development. Internet utilization increase was in the monitored year 2001 just 195.2% compared to 2000. We can suppose a lesser rate of growth in the next period, which is already confirmed by research results of 2002. After all, we can suppose that in the few next years there is a possibility of full penetration of Internet use in the agrarian resort. Penetration will reach of comparable value with general level in the Czech Republic.

A particular research has been performed at the same period. The groups of respondents are different. We can suppose much more innovators (visitors of exhibitions focused on technology) in the first research of the IVV than in the AGRIS research. AGRIS research was concerned with a very wide sample of bigger subjects of basic industry in agriculture. This is the reason why the result of the IVV research shows higher percentage of Internet utilization. On the other side, the second research of the IVV has been performed on a wide aimed agro salon, which explained the lowest percentage. These factors are naturally improved in the next years. In this context, it is necessary to note, that the IPC – AGRIS research deals with bigger enterprises where we can suppose a higher level of ICT instruments and consequently appropriate range of Internet penetration.

Table 2. Companies with Internet access in %

Research	2000	2001	2002
IVV – Techagro (April)	25	–	37
IVV – Země živilka (August)	19	36	–
IPC – AGRIS (April–June)	21	41	55

Source: IPC – AGRIS, IVV

Table 3. Development of Internet access

Research	2000/2001	2001/2002	2000/2002
Index AGRIS	195.2	134.1	26.,9

Source: IPC – AGRIS

Table 4. Utilizing IT – PC and LAN

Indicator/year of research	2000	2001	2002
Number of PC in company	3.7	3.1	4.4
LAN (%)	18.6	16.9	23.0

Source: IPC – AGRIS

Another monitored indicator was computer equipment of Czech agricultural enterprises in the terms of IPC – AGRIS research. These researches are the only available source of information about the situation in the Czech Republic in the mentioned period.

Lower values of numbers of PC and LAN obtained in 2001 may be surprising in comparison with 2000. It is caused by increase of the number of respondents over 520 enterprises in 2001 indeed. As was remarked above this increase has been reached by using of combined method of research (questionnaire – telemarketing). There were 84% smaller enterprises with area of 100–200 hectares. These enterprises have got an appropriate – lower equipment by ICT instruments. Total results demonstrate that Internet utilization has been increasing in all agrarian enterprises regardless of their size. It is demonstrated by the results of research in 2001 and 2002.

The important question is the level of using of Internet itself. The research presented the highest use of Internet services. According to our expectation, there is a very high orientation on using e-mail and WWW, which is approximately at the same level. E-mail was used little more in history (Table 5, year 2001); recently WWW is starting to be more used (Table 5, year 2002). The main result of research is confirmation of general dynamical increase of using Internet technologies in the agrarian sector. The use of E-mail was increased from 32.8% to 43.1% year by year. This growth means a real increase compared to 2001, over 31.4%, that means total increase of enterprises using Internet over 10.3%. Similar results were obtained in the sphere of using WWW. The total part of enterprises using WWW was increased from 31.6% in 2001 to 43.3% in 2002, which presents 37% increment year by year. The share of enterprises using the Internet was totally increased over 11.7%.

There is a very interesting situation in active enterprises (they are already using Internet) in this sphere, where using of e-mail registered a little reduction (1.4%). This reduction is fully compensated by using WWW (2% increase).

Another monitored indicator was the intensity of Internet utilization in agrarian enterprises in the Czech Republic, that already have Internet connections available. There it is shown that a full 51% of enterprises use the Internet daily and 20.8% use the Internet regularly (min. once a week). In the aggregate, there are 71.8% enterprises using the Internet regularly, who already have Internet connections established. All the details are presented in Table 6. According to the results of research, we can note that there are still large reserves in using the Internet. A full 28.2% of enterprises are working with the Internet only for a very little time (using sometimes, or almost not using it), although they have the Internet available. A very unsatisfactory situation is in sphere of active presentation of a company on the Internet. Own WWW pages have very few respondents. There are only 1.5% cases of enterprises owning the WWW presentation and it is only 0.8% (in 2002) in the whole file of respondents.

Table 5. Utilization ICT in agrarian enterprises

Using ICT in agricultural enterprises research 2001 a 2002) query	2001		2002		Index – change against previous year	
	enterprises total (%)	enterprises using Internet (%)	enterprises total (%)	enterprises using Internet (%)	enterprises total 2001/2002	enterprises using 2001/2002
Regularly using e-mail	32.8	79.4	43.1	78.0	131.4*	98.2
Regularly using WWW	31.6	76.4	43.3	78.4	137.0	102.6
Own WWW sites	0.6	1.4	0.8	1.5	133.3	107.1

Source: IPC – AGRIS

Table 6. Intensity of using Internet 2002

Using daily (%)	Using regularly (minim. once a week) (%)	Using sometimes (%)	Almost not using (%)
51.0	20.8	13.9	14.3

Source: IPC – AGRIS

Therefore, year by year presented increase 33.3% in the period of 2001–2002 means real increase of part of these enterprises over 0.2%. We can deduce quite one-way of using modern ICT in these enterprises. In the first place, the enterprises use the Internet services for a mutual communication and finding out the information from external sources, but they are very little oriented on the potentialities of self-presentation on it.

A very important part of IPC – AGRIS research is the research of knowledge of available information sources on WWW among the agrarian enterprises in the Czech Republic and the level of its utilization.

After charting the supply on this field there were significant Internet information sources in the resort (including the official Ministry of Agriculture presentation) included in this research. Servers with WWW presentation of the operator only are not included, because they have do not have a wide information content. No doubt we can note that they have not got a quality information. An example might be The Research Institute of Agricultural Economics (VÚZE), eventually WWW sites of other subjects.

## CONCLUSION

All the research showed that Internet utilization (ICT generally) in the agrarian sector in the Czech Republic is at a relatively low level in comparison with level of the Czech Republic generally. This sector presents the branch where there are a lot of other barriers to the development of modern ICT utilization. The agrarian sector and the countryside have its own specifics, which lead

to a certain latency in modern technology implementation. The financial situation is very difficult in agriculture in the long term. Therefore, the capital investments to the computer equipment or Internet connection are in the last place very often.

This situation is also influenced by a traditional conservatism of agrarians, the level of education, not much available information and services and, last but not least, long term of administration behavior. For all that, there has been very dynamic development in the last two years. One of the ways to improve the situation is to make accessible other kinds of information and to make new specialized Internet applications. It is a very important way to increase the ability to compete of the agrarian sector in the present difficult economic environment and also in terms of the European Union integration.

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