ISAFRUIT PATENT REPORT

2.6 PORTABLE AND NON-DESTRUCTIVE EQUIPMENT FOR FRUIT QUALITY ASSESSMENT (WP 4.2)

Isafruit output: to develop a prototype of portable, multi-sensors device for the non destructive measurement of the quality status of apple and peach. This device should allow measurements in all situations and under all conditions in the chain (orchard, packinghouse…). The start point will consist in determining the interest of the actual techniques (NIR, acoustic sensors, colorimetric assessment) and improve them especially in peach. Each technique will be then adapted and if possible combined to develop a more accurate device able to predict the apple and peach quality

2.6 A TRENDS IN TECHNOLOGY

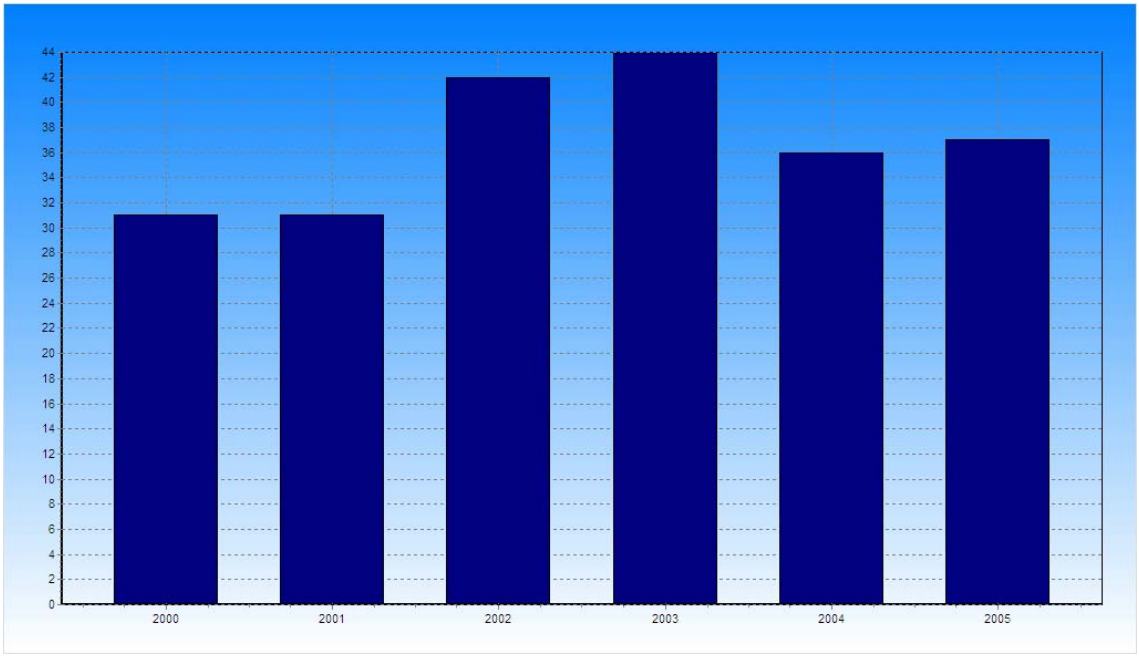

Figure 11. Worldwide effort made in patenting technology of instruments and methods of measurement relevant to fruit

According to the figure 11 it seems that this is an increasing sector. Number of patents are considerably high taking into account that we have narrowed our search with the use of keywords (fruit). We foresee an opportunity for ISAFRUIT participants in this field of technology.

2. 7. B PATENT ACTIVITY PER COUNTRY

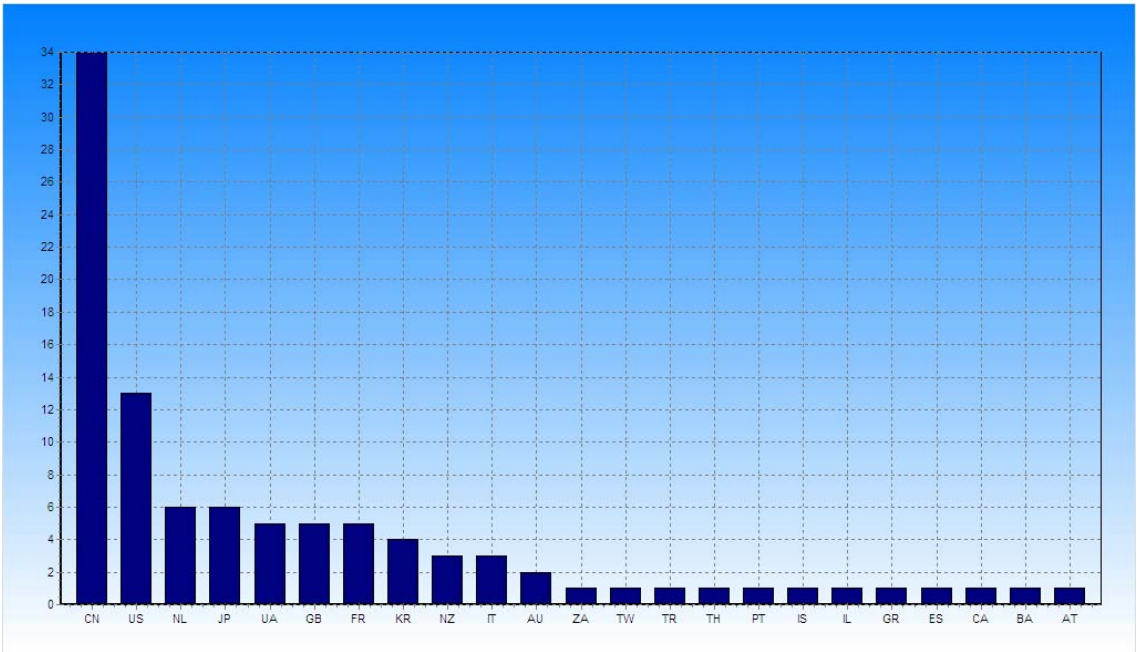

Figure 12. Patents filed per country, since 2000, one member per patent family only instruments and methods of measurement relevant to fruit

As in other cases China and US are ahead in terms of number of patents filed. It is noteworthy that the Netherlands is in third position.

2.7.D COLLABORATION WORK

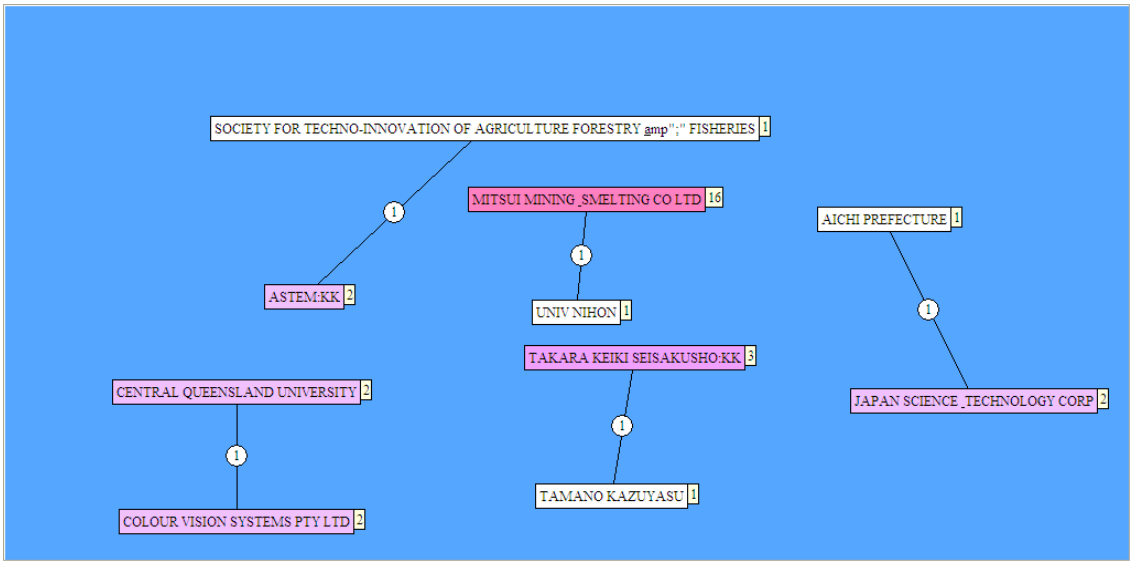

Figure 13 Organisations patenting together in preserving by instruments and methods of measurement relevant to fruit

Society for Techno-Innovation of Agriculture Forestry and Fisheries (JP)-Astem (JP)
Mitsui Mining Smelting (JP)-University Nihon (JP)
Aichi Prefecture (JP)-Japan Science_Technolgy Corp (JP)
Central Queensland University (AU)-Colour Vision Systems Pty (AU)

There appears to be a strong collaboration between academia and industry in this field of technology. However the collaborations are only between organisations from the same country (JP and AU). It shows again the low degree of international collaboration and highlights opportunities for ISAFRUIT and other European projects.

2.7.D THE MOST ACTIVE ORGANISATIONS

⇒ In the world

NAME OF THE ORGANISATION	Nºpatents	Country
MITSUI MINING & SMELTING CO LTD	16	JP
YANMAR AGRICULT EQUIP CO LTD	7	JP
KUBOTA CORP	7	JP
ZHEJIANG UNIVERSITY	4	CN
SUMITOMO METAL MINING CO LTD	4	JP
CHINA AGRICULTURAL UNIVERSITY	3	CN
SAIKA GIJUTSU KENKYUSHO	3	JP
TAVRIA STATE AGRICULTURAL ENGINEERING ACADEMY	3	UA
ASTEM:KK	2	JP
HIROSHIMA UNIV	2	JP
ISEKI & CO LTD	2	JP
KOCHI UNIV	2	JP
COLOUR VISION SYSTEMS PTY LTD	2	AU
CENTRAL QUEENSLAND UNIVERSITY	2	AU
JAPAN SCIENCE & TECHNOLOGY CORP	2	JP
TOKAN KOGYO CO LTD	2	JP
NAGASAKI PREFECTURE	2	JP
NIRECO CORP	2	JP
SHIZUOKA PREFECTURE	2	JP

Table 12. List of companies and organisations in the EU with patents in instruments and methods of measurement relevant to fruit

⇒ In Europe

NAME OF THE ORGANISATION	Nºpatents	Country
MATERIEL POUR L'ARBORICULTURE FRUITIERE	2	FR
TESTO GMBH & CO.	1	DE
Qmet ApS	1	DK
S.A.M.M.O. S.p.A.	1	IT
SA CETYS	1	FR
AGROTEC	1	FR
SHAKTIWARE SOCIETE PAR ACTIONS SIMPLIFIEE	1	FR
ANGLIA POLYTECHNIC UNIVERSITY	1	GB
SINCLAIR INTERNATIONAL LIMITED	1	GB

NAME OF THE ORGANISATION	Nºpatents	Country
UNIVERSITA' DEGLI STUDI DI UDINE	1	IT
UNITEC S.r.l.	1	IT
S.C.E. S.r.l.	1	IT
SACMI COOPERATIVA MECCANICI IMOLA SOCIETA' COOPERATIVA	1	IT
De Greef's Wagen-carrosserle-en Machinebouw B.V.	1	NL
STAALKAT INTERNATIONAL B.V.	1	NL

Table 13. List of companies and organisations in the EU with patents for instruments and methods of measurement relevant to fruit

2.7.E RELEVANT PATENTS RELATED WITH THIS TECHNOLOGY

Patent Number	US2004149916
Title	Portable apparatus for the non-destructive measurement to the internal quality of vegetable products
Inventor(s)	Benedetti Angelo; Pasini Ezio; Forlani Franco; Montanari Luca
Inventor Country	IT
Assignee	Benedetti et al.
Assignee Country	IT
Application date	22-02-2002

Table 14.Patent information of a relevant patent of instruments and methods of measurement relevant to fruit