SPECIFICAȚIE		2002 01.11.02-31.12.02	2003	2004	2005	2006	2007 01.01.07 – 31.11.07	TOTAL
LUCRĂRI internaționale cu comitet de program ANEXA 5.2.	Număr	**1**	**1**	**14**	**9**	**4**	**2**	**31**
	Punctaj	**5**	**5**	**70**	**45**	**20**	**10**	**155**
TOTAL	Număr	**1**	**1**	**14**	**9**	**4**	**2**	**31**
	Punctaj	**5**	**5**	**70**	**45**	**20**	**10**	**155**

ANEXA 5.2

LISTA LUCRĂRILOR ŞTIINŢIFICE PREZENTATE LA CONFERINŢE INTERNAŢIONALE CU COMITET DE PROGRAM

Lista comunicărilor grupate pe ani–perioada noiembrie 2002-noiembrie 2007

Nr. crt.	Comunicare	Conferința	Autori Institutul	Punctaj
0	1	2		3
		ANUL 2002		
1	Agricultura de precizie – un nou concept în cercetarea şi practica agricolă	Priorităţi ale cercetării ştiinţifice în domeniul culturilor de câmp, Simpozion dedicat implinirii a 115 ani de la naşterea Academicianului Gheorghe Ionescu-Şişeşti, Bucureşti, 2002	Gh. Olteanu[1], I.M. Olteanu[2], I. Olteanu[2] [1]ICDCSZ Braşov [2]USAMV Cluj-Napoca	5
			Total puncte anul 2002	*5*
		ANUL 2003		
2	Using spatial analyse methods in potato precision croping	XXXVIII Croatian Sympozium on Agriculture, Faculty of Agriculture, University of Zagreb,19-21 February, Zagreb, 2003	M. Olteanu[1], Gh. Olteanu[2], M. Rusu[1], G. Morar[1], M. Toader[1] [1] USAMV Cluj-Napoca [2] ICDCSZ Braşov	5
			Total puncte anul 2003	*5*
		ANUL 2004		
3	Research and development priorities in potato field with a view to the sustainable development of romanian agriculture	EAPR AGRONOMY SECTION MEETING, Mamaia, Romania, June 23-27th 2004	S.C. Chiru, Gh. Olteanu, ICDCSZ Braşov	5
4	Performanţele noilor soiuri de cartof create de Institutul de Cercetare-Dezvoltare pentru Cartof si Sfecla de Zahăr, Braşov	EAPR AGRONOMY SECTION MEETING, Mamaia, Romania, June 23-27th 2004	I. Bozeşan, S.C. Chiru, C-tin Draica, ICDCSZ Braşov	5
5	Evaluarea calitativa si structura producţiei la unele soiuri de cartof în condiţiile climatice specifice zonei Braşovului	EAPR AGRONOMY SECTION MEETING, Mamaia, Romania, June 23-27th 2004	M. Prodan, M. Ianoşi, ICDCSZ Braşov A. Istvan, SC Tractorul Braşov	5
6	Researches on genotype influence on potato microtuberization	EAPR AGRONOMY SECTION MEETING, Mamaia, Romania, June 23-27th 2004	R. Roşu, N. Chiru ICDCSZ Braşov J. L. Rolo, CRA Libramont, Belgia	5

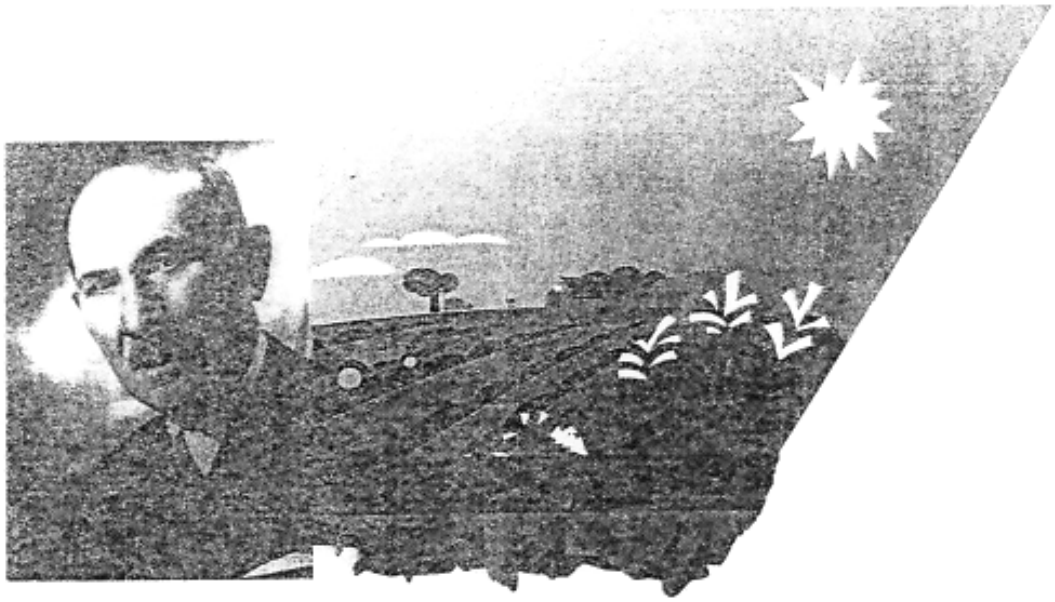
Nr. crt.	Comunicare	Conferința	Autori Institutul	Punctaj
0	1	2		3
7	Mana cartofului şi controlul acesteia în condiţiile specifice zonei Braşov	EAPR AGRONOMY SECTION MEETING, Mamaia, Romania, June 23-27th 2004	M. Hermeziu, R. Hermeziu ICDCSZ Braşov	5
8	Tehnologii moderne de conservare a cartofului	EAPR AGRONOMY SECTION MEETING, Mamaia, Romania, June 23-27th 2004	V. Donescu, D. Donescu, M. Ianoşi, ICDCSZ Braşov D. Bobiţ, SCDPMA Fundulea R. Cramariuc, CCEE Bucureşti	5
9	Actual situation of potato in Europe	EAPR AGRONOMY SECTION MEETING, Mamaia, Romania, June 23-27th 2004	C-tin Draica, L. E. Dima, M. A. Ionescu, E. I. Pârvan ICDCSZ Braşov	5
10	Influenţa condiţiilor meteorologice asupra evoluţiei populaţiei de afide (vectori ai virusurilor) la SCDA Suceava (1997-1999)	EAPR AGRONOMY SECTION MEETING, Mamaia, Romania, June 23-27th 2004	I. Goantariu[1], D. Donescu[2] [1] SCDA Suceava [2] ICDCSZ Braşov	5
11	Utilizarea hărţilor de conductibilitate electrică a solului în perfecţionarea tehnologiilor de cultivare a cartofului în agricultura de precizie (CONELAP). Rezultate preliminare privind modelul experimental	Lucrările Simpozionului Cercetarea pe filiera agroalimentară din România în contextul european, Bucureşti, 2004	Olteanu Gh[1]., Oltean M. I. [1], Cramariuc R.[2], Ianoşi M.[1], Pamfil Gh.[1], Turcu C.[3], Aldea C.[3] [1]ICDCSZ Braşov [2]CCEE Bucureşti [3]Universitatea Transilvania Braşov	5
12	Effects of minitubers size and planting density on seed potato yield of romanian varietes	EAPR AGRONOMY SECTION MEETING, Mamaia, Romania, June 23-27th 2004	M. Bărdaş ICDCSZ Braşov	5
13	Preventing potato sprouting during storage using essential oils extraced from medicinal and aromatic plants	Sympozium "Prospects of the 3th Millenium Agriculture" , 20-23 October , 2004, Cluj-Napoca	Donescu V.,Bobit D, Donescu D. ICDCSZ Braşov	5
14	The corelations between the aphids flight and haulm killing of seed potatoes	Sympozium "Prospects of the 3th Millenium Agriculture" , 20-23 October , 2004, Cluj-Napoca	Olteanu M.[1], Savatti M.[1], Oltean Gh.[2], Muntean L.[1], Urda M.[1] [1] USAMV Cluj-Napoca [2] ICDCSZ Braşov	5
15	Preliminary results regarding the creation of a device for measurinf the electric conductibility and tracing the maps of electric conductibility of the soil	Sympozium "Prospects of the 3th Millenium Agriculture" , 20-23 October , 2004, Cluj-Napoca	Olteanu Gh[1]., Cramariuc R.[2], Oltean M.I.[1] , Ianosi M.[1], Turcu C.[1] [1] ICDCSZ Braşov [2] USAMV Cluj-Napoca	5

Nr. crt.	Comunicare	Conferința	Autori Institutul	Punctaj
0	1	2		3
24	The dynamic characteristics of potato tubers sprouting during storage	16th Triennial Conference of the EAPR-2005, July 17 to 22, Bilbao, Spain	Donescu V & Chiru S. ICDCSZ Braşov	5
25	Aphids in seed potato crops of Romania	16th Triennial Conference of the EAPR-2005, July 17 to 22, Bilbao, Spain	Donescu D. & Chiru S. ICDCSZ Braşov	5
			Total puncte anul 2005	*45*
		ANUL 2006		
26	Actual state and future trends of the Romanian potato industry	"POTATO DEVELOPMENTS IN A CHANGING EUROPE", Potato Europe , 4-6 September 2006, Hameln, Germany,	S. C. Chiru, Gh. Olteanu, E. L. Dima INCDCSZ Braşov	5
27	An intelligent system for measuring soil electrical conductivity	17th International DAAAM Symposium „Intelligent manufacturing & automation: focus on mechatronics and robotics" , 8-11 november 2006, Vienna, Austria	Olteanu C. , Zamfira S., Olteanu Gh. [1]& Olteanu F. [1] INCDCSZ Braşov	5
28	Calitate şi trasabilitate în produsele pe bază de plante medicinale	Al III-lea simpozion de Etnofarmacologie Calitatea produselor biologic active şi tehnologii inovative de extracţie, Braşov, 30 iunie-2 iulie	Gh. Olteanu[1], Mărculescu A.[2] [1] INCDCSZ Braşov [2]Universitatea Lucian Blaga Sibiu	5
29	Fertilization in potato crop. Using the soil electrical conductivity maps in improving of potato crop technology precision farming	4th UEAA General Assembly Bucharest, 25-27 June 2006 „Soil fertility and the future of agriculture in europe"	Oltean M. I., Ianoşi M, Chiru S. C.,m Olteanu Gh., Donescu V. INCDCSZ Braşov	5
			Total puncte anul 2006	*20*
		ANUL 2007		
30	Agritronics: aids from mechatronics	11th International Research / Expert Conference „TRENDS IN THE DEVELOPMENT OF MACHINERY TECHNOLOGY" TMT 2007, Hammamet, Tunisia 05-09 September, 2007	C. Olteanu [1], S. Zamfira [1], Gh. Olteanu [2], F. Olteanu [1], C. Turcu [1], [1] Transilvania University of Braşov [2] INCDCSZ Braşov	5

Nr. crt.	Comunicare	Conferința	Autori Institutul	Punctaj
0	1	2		3
31	Les jardins des plantes medicinales et aromatiques- de la tradition a l'agrotourisme modern	6th European Colloquium on Ethnopharmacology (ESE) & 20. Fachkonferenz Ethnomedizin (AGEM) Joint Meeting, New trends in Ethnobotany and Ethnopharmacology , 8-10 November 2007, Leipzig	Mărculescu A.[1], Stanciu M[1], Hanganu D.[2], Olteanu Gh.[3], Mărculescu L.[3], Popa E.[3] [1] Universitatea Lucian Blaga Sibiu [2] UMF Cluj-Napoca [3] INCDCSZ Brașov	5
			Total puncte anul 2007	10
			TOTAL PUNCTE	***155***

ACADEMIA DE ŞTIINŢE AGRICOLE ŞI SILVICE
„GHEORGHE IONESCU-ŞIŞEŞTI"
SECŢIA CULTURA PLANTELOR

Simpozion dedicat împlinirii a 115 ani de la naşterea Academicianului Gheorghe Ionescu-Şişeşti



Priorităţi ale cercetării ştiinţifice în domeniul culturilor de câmp

Coordonatori:

Prof. univ. dr. doc. şt. Cristian HERA
Membru corespondent al Academiei Române
Membru titular al Academiei de Ştiinţe Agricole şi Silvice

Dr. ing. Ilaria DOUCET
Membru titular al Academiei de Ştiinţe Agricole şi Silvice

EDITURA CERES

ACADEMIA DE ŞTIINŢE AGRICOLE ŞI SILVICE
„GHEORGHE IONESCU-ŞIŞEŞTI"
SECŢIA CULTURA PLANTELOR

Simpozion dedicat împlinirii
a 115 ani de la naşterea
Academicianului Gheorghe Ionescu-Şişeşti

Priorităţi ale cercetării ştiinţifice în domeniul culturilor de câmp

Coordonatori:
Prof. dr. doc. şt. CRISTIAN HERA
Membru corespondent al Academiei Române
Membru titular al Academiei de Ştiinţe Agricole şi Silvice

Dr. ing. ILARIA DOUCET
Membru titular al Academiei de Ştiinţe Agricole şi Silvice

EDITURA CERES
Bucureşti, 2002

AGRICULTURA DE PRECIZIE – UN NOU CONCEPT ÎN CERCETAREA ŞI PRACTICA AGRICOLĂ

Gh. OLTEANU[*], I.M. OLTEAN[**], Ioana OLTEAN[**]

Cuvinte cheie: agricultură de precizie, abordare sistemică, modelare şi simulare, sistem informatic geografic (GIS), sistem global de poziţionare (GPS), teledetecţie, analiză spaţială, mecatronică agricolă.

1. Introducere

Omenirea se confruntă cu trei probleme majore generatoare de îngrijorare şi conflicte, mai mult sau mai puţin generalizate: creşterea demografică, limitarea resurselor de hrană, poluarea şi deteriorarea mediului înconjurător (Picu şi Sin, 2001). Agricultura poate şi trebuie să intervină în rezolvarea acestor probleme majore. Agricultura ultimilor ani, performanţele realizate în ţările dezvoltate, tehnologiile puse în joc, prefigurează agricultura mileniului trei. Agricultura modernă are ca principal obiectiv perfecţionarea continuă a procesului de producţie. Aceasta este posibilă numai prin modernizarea conceptelor şi metodelor din cercetare şi din practica agricolă, deziderat, care acum este posibil prin realizările ştiinţifice recente, precum şi în tehnicile experimentale, de calcul şi interpretarea rezultatelor (Olteanu şi colab.,1989; Olteanu şi Dudui, 1997 a).

Agricultura de precizie se înscrie ca o metodologie nouă (care tinde spre un nou sistem de agricultură), care ar putea fi cheia rezolvării multor probleme actuale (Olteanu, 1999).

Oportunităţile care au favorizat apariţia agriculturii de precizie sunt:

a) capacitatea de înţelegere a complexităţii sistemelor agricole – abordarea sistemică şi holistică (Olteanu şi Dudui, 1997 b; Singh şi Thornton, 1992);
b) capacitatea de monitorizare a fenomenelor şi proceselor – automatizarea achiziţiilor de date;

---

[*] Institutul de Cercetare şi Producţie a Cartofului (ICPC) Braşov
[**] Universitatea de Ştiinţe Agricole şi Medicină Veterinară (USAMV) Cluj-Napoca

UNIVERSITY
OF ZAGREB
FACULTY OF
AGRICULTURE

AGRONOMSKI
FAKULTET
SVEUČILIŠTA
U ZAGREBU

XXXVIII. ZNANSTVENI SKUP HRVATSKIH AGRONOMA

s međunarodnim sudjelovanjem

OPATIJA :: **HRVATSKA**
19.-21. veljače 2003.

XXXVIII
CROATIAN
SYMPOSIUM ON
AGRICULTURE

with International Participation

OPATIJA :: CROATIA
February 19-21, 2003

PRIOPĆENJA :: PROCEEDINGS

Opatija, Grand Hotel Adriatic

Izdavač
Published by

Agronomski Fakultet Sveučilišta u Zagrebu, Zagreb, Hrvatska
University of Zagreb, Faculty of Agriculture, Zagreb, Croatia

Glavni urednik - Editor in Chief

Tito Žimbrek

Uređivački odbor
Editorial Board

Ferdo Bašić
Josip Borošić
Zlatko Čmelik
Ante Ivanković
Nikola Kezić
Vinko Kozumplik
Vjekoslav Par
Tomislav Treer
Boris Varga

Oblikovanje - Designed by

Dragan Tupajić

Tisak - Printed by

Kuliš d.o.o. Zagreb

Naklada - Edition

500

CIP - Katalogizacija u publikaciji
Nacionalna i sveučilišna knjižnica - Zagreb

UDK 631(497.5)(063)
ZNANSTVENI skup hrvatskih agronoma s međunarodnim sudjelovanjem (38 ; 2003 ; Opatija)
XXXVIII. znanstveni skup hrvatskih agronoma s međunarodnim sudjelovanjem Opatija, 19. - 21. veljače 2003. : priopćenja = XXXVIII Croatian Symposium on Agriculture with International Participation : proceedings. - Zagreb : Agronomski fakultet, 2003.

Tekstovi na hrv. i engl. jeziku. -
Bibliografija iza svakog rada.

ISBN 953-6135-39-6

I. Poljoprivreda -- Hrvatska -- Zbornik

430210117

Organizacijski odbor :: Organizing Committee

Predsjednik :: Chairwoman: **Prof.dr.sc. Jasmina Havranek**

Članovi :: Members:

Prof.dr.sc. Rudolf Emert
Dr.sc. Zvonimir Marić
Mr.sc. Božidar Pankretić
Danijel Škoro, dipl.oec.
Josip Janeš, dr. vet. med.
Drago Ćorić, dipl.ing.
Dr.sc. Đurđica Ugarković
Krešimir Kuterovac, dipl.ing.
Dr.sc. Ivan Katalinić
Dr.sc. Slavko Perica
Dr.sc. Đordano Peršurić
Dr.sc. Josip Kovačević
Dr.sc. Ljudevit Plačko

Znanstveni odbor :: Scientific Committee

Predsjednik :: Chairman: **Prof.dr.sc. Tito Žimbrek**

Članovi :: Members:

Doc.dr.sc. Branka Aničić
Prof.dr.sc. Ivica Aničić
Prof.dr.sc. Josip Borošić
Dr.sc. Ivan Brkić
Doc.dr.sc. Zlatko Čmelik
Dr. sc. Ivan Danjek
Prof.dr.sc. Vlado Guberac
Doc.dr.sc. Ante Ivanković
Prof.dr.sc. Marijan Jošt
Prof.dr.sc. Sonja Jovanovac
Prof.dr.sc. Ivo Jurić
Prof.dr.sc. Vinko Kozumplik
Dr.sc. Miroslav Krizmanić
Dr.sc. Alojzije Lalić
Dr.sc. Aldo Milotić
Doc.dr.sc. Anđelko Opačak
Doc.dr.sc. Nada Paradiković
Dr.sc. Dragomir Parlov
Dr.sc. Svetislav Popović
Dr.sc. Stipe Radinović
Prof.dr.sc. Đuro Senčić
Doc.dr.sc. Zlatko Šatović
Prof.dr.sc. Boris Varga
Dr.sc. Marija Vratarić

Tajnik :: Secretary: **Prof.dr.sc. Milan Pospišil**

Agronomski fakultet Sveučilišta u Zagrebu
Faculty of Agriculture, University of Zagreb

i :: and

Poljoprivredni fakultet Sveučilišta "J. J. Strossmayer" u Osijeku
Faculty of Agriculture, University "J. J. Strossmayer" in Osijek

Ministarstvo znanosti i tehnologije Republike Hrvatske
Ministry of Science and Technology of the Republic of Croatia

Ministarstvo poljoprivrede i šumarstva Republike Hrvatske
Ministry of Agriculture and Forestry of the Republic of Croatia

pod pokroviteljstvom :: under the auspices of the

Predsjednika Hrvatskog sabora
President of the Croatian Parliament

a u suradnji s :: in collaboration with

Bc Institutom za oplemenjivanje i proizvodnju bilja, Zagreb
Bc Institute for Breeding and Production of Field Crops, Zagreb

Gradskim uredom za poljoprivredu i šumarstvo grada Zagreba
Department of Agriculture and Forestry of the City of Zagreb

Hrvatskim agronomskim društvom
Croatian Society of Agronomists

Hrvatskim genetičkim društvom
Croatian Genetic Society

Hrvatskim stočarsko selekcijskim centrom
Croatian Livestock Selection Centre

Hrvatskim zavodom za poljoprivrednu savjetodavnu službu
Croatian Agricultural Extension Institute

Institutom za jadranske kulture i melioraciju krša, Split
Institute for Adriatic Crops and Karst Reclamation, Split

Institutom za poljoprivredu i turizam, Poreč
Institute for Agriculture and Tourism, Poreč

Poljoprivrednim institutom Osijek
Agricultural Institute Osijek

Visokim gospodarskim učilištem u Križevcima
College of Agriculture at Križevci

organiziraju :: organize

XXXVIII. ZNANSTVENI SKUP HRVATSKIH AGRONOMA

s međunarodnim sudjelovanjem

XXXVIII CROATIAN SYMPOSIUM ON AGRICULTURE

with International Participation

USING SPATIAL ANALYZE METHODS IN POTATO PRECISION CROPING

Mircea I. OLTEAN[1], Ghe. OLTEANU[2], Mihai RUSU[1], Gavrilă MORAR[1], Mariana TOADER[1]
[1]University of Agriculture Science and Veterinary Medicine, Str. Mănăştur 3-5, 3400 Cluj-Napoca, Romania. E-mail: molteanu@clujnapoca.ro
[2]Potato Research Institute, Str. Fundării 2, 2200 Braşov, Romania

Introduction

One of the main objectives of the modern agriculture is the continuously improvement of the production process.

Potato precision croping is achieved having in view the crop purpose and the variation of the growing conditions (Olteanu, Dudui, 1997).

The aim of potato precision croping is to optimize the use of soil and water resources as well as the chemical inputs (fertilizers and pesticides) based on the local specific conditions (Stevenson et al., 1995). The objectives of integrated potato crop management are:

- Obtaining of high and qualitative yields, that are constant in time and space;
- Optimization of economic profits;
- Totally achievement of environment protection;
- Inhance of agricultural systems sustainability.

There are pressures to increase agricultural profit by increasing crop yield and minimizing costs. Soil fertility is the key component in crop yield.

The spatial analyze is a set of tools for solving a wide range of problems such as maximizing agricultural profit by knowing the relationship between soil chemistry and crop yield (ESRI, 1996 a, Haidu & Haidu, 1998). Spatial analyzes help us to discover and understand spatial relationships in our data. Spatial analyzes include a set of functions from usual functions like estimate of a distance or histogram to complex functions that interpolate surface or compute density (ESRI, 1996 b).

Precision farming is the practice of "farming soils, not fields". This means that land is managed for natural variation and not for the artificial variation imposed by field boundaries (ESRI, 1996a, Olteanu & Dudui, 1997).

The paper presents the results obtained by interpolating agrochemical data from lands of Potato Research Institute (I.C.D.C.) Brasov.

Materials and Methods

There were utilized pH, phosphorus and potassium content data of I.C.D.C. Brasov soils. The calculation program, spatial analyzes and map drawing were done in PC AVENUE language (ESRI, 1996 b).

T. nterpolation method is a procedure that has as input data a set of points distributed under a surface and as result the surfaces that contain the input points. This approximation of the surface is made more correct if we choose the best parameters for interpolation method.

Following interpolation methods (ESRI, 1996 a) were tested:

- Inverse Distance Weighted (IDW) is an interpolator, which assumes that each input point has a local influence that diminishes with distance;
- Spline interpolator is a general-purpose interpolation method that fits a minimum - curvature surface through the input points;
- Kriging interpolator is a specialized interpolation method that assume the distance or direction between sample points shows spatial correlation that helps describe the surface.

Results and Discussion

The implementation of these three methods gives us three estimated maps of the distribution for each agrochemical (figures 1-3).

We tested first Kriging with the best parameters and after that we proceeded with Spline and I.D.W. analogous. To rich the best values for the Kriging parameters we tested first different kinds of semivariograms (Kringing linear, circular). After that we tried to modify the number of points taken in discussion until we have obtained an approximate solution.

The concordance with the mathematical theory of interpolation was made not only using computations, but also noting the visible resemblance between the results obtained with Kriging, Spline and I.D.W.

However, the best results were obtained by Kriging interpolation, which present less number of homogeneous zones with possible uniform soil management.

MINISTERUL AGRICULTURII, PĂDURILOR ŞI DEZVOLTĂRII RURALE
ACADEMIA DE ŞTIINŢE AGRICOLE ŞI SILVICE
"Gheorghe Ionescu-Şişeşti"

LUCRĂRI ŞTIINŢIFICE

ANALE

INSTITUTUL DE CERCETARE-DEZVOLTARE PENTRU CARTOF ŞI SFECLĂ DE ZAHĂR
Vol. XXXI

PROCEEDINGS OF EAPR AGRONOMY SECTION MEETING
MAMAIA, ROMANIA
JUNE 23-27th 2004

BRAŞOV 2004

RESEARCH AND DEVELOPMENT PRIORITIES IN POTATO FIELD WITH A VIEW TO THE SUSTAINABLE DEVELOPMENT OF ROMANIAN AGRICULTURE

S. C. CHIRU[1], GH. OLTEANU[2]
Research and Development Institute for Potato and Sugar Beet (ICDCSZ)
Braşov 500470, 2 Fundăturii str, România, http://www.potato.ro; e-mail: icpc@potato.ro

SUMMARY

In relation to the process of applying the principles of sustainable agriculture in Romania a logical sequence of the current components of the agricultural system is presented for the potato crop; the limiting factors, development sectors, short and long term aims for designing priorities for research and development.

The perspective of the European integration of Romania and the complexity of this process, the need for the reorganization and restructuring of the research-development activity (especially in producing material from superior biological categories on the basis of Romanian varieties) impose a new approach in the management activities at the Institute for Research and Development for Potato and Sugar Beet (ICDCSZ) Brasov.

Key words: *sustainable agriculture, priorities, integration, research & development strategies*

INTRODUCTION

Nowadays mankind is confronted with three major issues generating conflict and concern: demographic growth, the limiting of food resource, pollution and degradation of the environment (Picu and Sin, 2001; Olteanu et al., 2001). Agriculture is able to and must intervene in solving these major issues. Modern agriculture sets as its main objective the continuous improvement of the production process (Chiru and Olteanu, 2004). Only by up-dating concepts and methods in research and agriculture practice this can be attained (Olteanu et al., 1989; Olteanu and Dudui, 1997).

The concept of sustainability has a universal validity and applies in all human, sociological, economical and technological activity. Related to agriculture, *"the term sustainable agriculture means an integrated system of plant and animal production practices having a site-specific application that will, over the long term: a) satisfy human food and fiber needs; b) enhance environmental quality and the natural resource base upon which the agricultural economy depends; c) make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls; d) sustain the economic*

PERFORMANȚELE NOILOR SOIURI DE CARTOF CREATE DE INSTITUTUL DE CERCETARE-DEZVOLTARE PENTRU CARTOF ȘI SFECLĂ DE ZAHĂR, BRAȘOV

Ion BOZEȘAN[1], Sorin CHIRU[1], Constantin DRAICA[1]
[1]Institutul de Cercetare-Dezvoltare pentru Cartof și Sfeclă de Zahăr, Brașov 500470, str. Fundăturii 2, România, http: www.potato.ro; e-mail: icpc@potato.ro

REZUMAT

Pe plan mondial, dar și în România, se cultivă o mare diversitate de soiuri. Cultivarea lor este necesară, întrucât cartoful are scopuri de utilizare foarte diversificate, se cultivă în condiții ecologice foarte diferite, este atacat de un număr foarte mare de boli și dăunători, iar pretențiile producătorilor și consumatorilor de cartof sunt schimbătoare și mereu crescânde.

Din multitudinea de soiuri trebuie incluse în sistemul național de producere a cartofului de sămânță și recomandate, cele mai performante, întrucât soiurile pot fi înmulțite doar într-un număr limitat.

Din cele 37 soiuri create la Insitutul de Cercetare-Dezvoltare pentru Cartof și Sfeclă de Zahăr au fost incluse în sistemul național de producere a cartofului pentru sămânță soiurile **Amelia**, **Christian**, **Dacia**, **Nicoleta**, **Tâmpa** și **Roclas**, fiind considerate cele mai performante soiuri pentru viitor.

Cuvinte cheie: cartof, soiuri noi, rezistența la virusuri, capacitatea de producție.

INTRODUCERE

Ameliorarea poate fi definită drept un proces de adaptare a plantelor de cultură la sistemul tehnologic utilizat la momentul dat de cultivatori (Săulescu, 1999). Ameliorarea este un proces continuu, care trebuie să țină pasul cu modificarea condițiilor ecologice, cu creșterea agresivității și a lărgirii patogenității agenților patogeni, datorită apariției de noi rase, tulpini, biotipuri și patotipuri, dar și de cerințele mereu crescânde ale producătorilor și consumatorilor.

Cartoful se numără printre plantele de cultură care necesită o mare diversitate de soiuri datorită următoarelor considerente:

- are scopuri de utilizare foarte diversificate. Astfel, cartoful se cultivă pentru consum timpuriu, consum de vară, consum de toamnă – iarnă, pentru industrie (amidon, spirt, glucoză, dextrină, etc.), industrializare (chips, pommes – frites, fulgi, etc.) și furajare;
- se cultivă în condiții ecologice foarte diferite;
- este atacat de un număr foarte mare de boli și dăunători;

EVALUAREA CALITATIVĂ ŞI STRUCTURA PRODUCŢIEI LA UNELE SOIURI DE CARTOF ÎN CONDIŢIILE CLIMATICE SPECIFICE ZONEI BRAŞOVULUI

Mihaela PRODAN[1], Alina ISTVAN[2], Maria IANOŞI[1]
[1] Institutul de Cercetare - Dezvoltare pentru Cartof şi Sfeclă de Zahăr (I.C.D.C.S.Z.) Braşov
[2] S.C. Tractorul UTB S.A. Braşov

REZUMAT

În lucrare se prezintă date privind calitatea culinară şi potenţialul productiv a opt soiuri de cartof (româneşti şi străine), cultivate la Braşov, în perioada 1997-2002, cu încadrarea soiurilor pe categorii de folosinţă şi evidenţierea diferenţelor calitative şi productive dintre soiuri în funcţie de condiţiile climatice din anii de cultură.

Domeniul calităţii fiind foarte vast, nu vom putea epuiza toate aspectele. Ne vom referi numai la: calitatea culinară (încadrarea soiurilor în grupe de folosinţă), pretabilitatea la industrializare (culoare, randamentul de obţinere pentru chips) şi productivitatea soiurilor luate în studiu.

Clasificarea pe grupe de folosinţă (consum, industrializare, sămânţă, furajare), are drept scop evidenţierea soiurilor cu însuşiri valoroase şi astfel orientarea producţiei spre segmentul de piaţă corespunzător.

Cuvinte cheie: cartof, soi, condiţii climatice, productivitate, calitate culinară, calitate chips.

INTRODUCERE

Termenul de calitate la cartof cuprinde totalitatea însuşirilor fizice, chimice, culinare şi se raportează atât la pretenţiile consumatorilor cât şi la destinaţia producţiei. După Organizaţia Mondială pentru Standardizare (ISO) calitatea este definită ca totalitatea însuşirilor şi caracteristicilor unui produs care are capacitatea de a satisface cerinţele dorite sau implicite (www.iso-9000-2000.com).

În general, atributele calitative sunt clasificate astfel:

- externe (aspect, consistenţă, defecte);
- interne (miros, gust, textură);
- ascunse (stare fitosanitară, valoare nutritivă, siguranţă alimentară).

Atributele calităţii externe joacă un rol important în decizia consumatorilor de a alege. Împreună cu însuşirile calităţii interne determină acceptarea unui produs. Cel de-al treilea tip de atribute este mai greu de măsurat şi ajută la diferenţiere (Kramer şi Twigg, 1970; Pattee, 1985; Shewfelt, 1987).

9. PATTEE H.E., 1985. Evaluation of quality of fruits and vegetables. AVI, *Van Nostrand Reinhold Co.*, New York
10. SHEWFELT R.L., 1987. Quality of minimally processsed fruits and vegetables. *J. Food Qual.* 10: 143.

QUALITATIVE EVALUATION AND PRODUCTION STRUCTURE OF SOME POTATO VARIETIES UNDER CLIMATIC CONDITIONS SPECIFIC TO BRAŞOV AREA

Abstract

The paper presents information regarding the culinary quality and the yielding potential of eight Romanian and foreign varieties of potatoes cultivated in Braşov between 1997 and 2002. The potato varieties are classified into categories of use and the differences among the varieties are pointed out, as far as quality and production are concerned, depending on the weather conditions during this period.

Since the quality field is extremely wide, we will not be able to exhaust all the aspects. The subjects dealt with herein are only the culinary quality (classifying the varieties into categories of use), the suitability for industrial processing (color, chips obtaining efficiency) and the yielding of the varieties under research.

The classification into categories of use (consumption, industrial processing, seed, fodder) has in view the pointing out the varieties with valuable qualities and, therefore, the directing of the production towards the proper market segment.

Keywords: potato, variety, weather conditions, yielding, culinary quality, chips quality.

Tables:

1. Variation of some climatic conditions between 1997-2002 in Braşov;
2. Assessment scheme of potato culinary quality;
3. Yield of the 8 potato varieties between 1997-2002;
4. Correlation matrix of culinary and technological quality indices in the studied varieties;
5. Starch content variation in dependence of climatic conditions;
6. Behaviour of potato varieties between 1997 – 2002 in Braşov.

Figures:

1. Variety clssification acoording to the quality;
2. Correlation between starch content and chips obtaining efficiency.

MANA CARTOFULUI ŞI CONTROLUL ACESTEIA ÎN CONDIŢIILE SPECIFICE ZONEI BRAŞOV

Manuela HERMEZIU[1], Radu HERMEZIU[1]
[1] Institutul de Cercetare Devzoltare pentru Cartof şi Sfeclă de Zahăr-Braşov

REZUMAT

Mana cartofului, produsă de ciuperca *Phytophthora infestans,* este cea mai distrugătoare boală a cartofului, producând pierderi de producţie foarte importante

Sunt necesare fungicide care să asigure o bună protecţie atât cantitativă cât şi calitativă a culturii de cartof. Din păcate, nici un fungicid disponibil la ora actuală nu asigură un control absolut al manei.

Condiţiile climatice in timpul atacul de mană sunt foarte importante.

În perioada 2001-2002 la ICDCSZ-Braşov a fost iniţiat un program de testare a unor fungicide din grupe chimice diferite.

S-a folosit soiul Sante, soi cu rezistenţă mijlocie la mană, având în vedere că 45% din suprafaţa cultivată cu cartof în România, la ora actuală este ocupată de acest soi.

Cuvinte cheie: *Phytophthora infestans*, fungicide, control, condiţii climatice

INTRODUCERE

Condiţii favorabile manei:

- Noaptea temperaturi nu mai scăzute de 7°C
- Temperaturile între 15 şi 21°C sunt cele mai favorabile pentru dezvoltarea leziunilor şi sporulare, în timp ce la temperaturi mai mari de 29°C patogenul nu se mai dezvoltă
- Perioada cu umiditate pe frunze (roua sau ploaie) peste 6 ore este favorabilă producerii de noi infecţii
- Perioadele cu umiditate pe frunze mai mult de 8 ore sunt foarte critice

În cazul infecţiilor severe ale culturii, tuberculii de sămânţă sunt purtătorii unei mari cantităţi de inocul în noul sezon agricol. (Louise R., Cooke, 1999)

2001 Precipitaţii (mm/m^2), Braşov

Perioada	Iunie	Iulie	August
Decada I	1,3 (2)*	30,0 (8)*	15,0 (2)*
Decada II	38,7 (5)	50,1 (3)	4,9 (1)
Decada III	40,0 (6)	1,5 (3)	48,3 (6)
Total lunar	80,0	81,6	68,2
Media multianuală	91,9	87,4	67,3
Diferenţa	-11,9	-5,8	+0,9

* = număr zile cu precipitatii

MODERN TECHNOLOGY FOR POTATO STORAGE

Abstract

Technological and quality requirements imposed upon table potato and those destined to industrial processing demand adopting the modern technology of storage, unpolluted, cheap, easy of access.

This paper intends to establish the technical conditions to apply new, unconventional methods of storage: applications with natural sprout inhibitors. Similar research have been done years ago in Netherlands, having as main inhibitor carvone, extracted from mature caraway seed (*Carum carvi*).

Application were done with oils extracted from three different medicinal and essential plants (*Carum carvi* L., *Mentha crispa* L., *Anethum graveolens* L.,). The experiments were done on ICDCSZ Braşov research storage. The application were made on the second part of storage period, after sprouting of potato tubers. Four different potato cultivars were used (Roclas, Romano, Sante, and Desiree) which were treated with each natural extract. The influence of application upon losses due to sprouting, upon weight losses and total losses were followed.

The best results were obtained using the oil of caraway seed. Sprouting losses were diminished with an average of 56.25%, and the lenght of sprouts with 48.86%. These results were similar for all cultivars comparatively with the control. The potato cultivars responded favourably to application and the level of losses was specific to each cultivar.

Keywords: potato, storage, essential oil, losses, sprout.

Tables:

1. Effect of essential oils application on the lengh of sprout during storage.
2. Effect of essential oils application on sprout weight during storage.
3. Effect of essential oils application on total losses during storage.

Figures:

1. Device for aerosol scatter.
2. Structure of losses during storage of potato varieties treated with essential

ACTUAL SITUATION OF POTATO IN EUROPE

Constantin DRAICA, Elena-Laura DIMA, Maria-Alina IONESCU and Eugen-Ion PÎRVAN
Research and Development Institute for Potato and Sugar Beet
500470, 2 Fundaturii str., Brasov, Romania; http://www.potato.ro; e-mail: cdraica@potato.ro

SUMMARY

In 2003, potato has been grown on 19.2 million hectares with a total production of 311.4 million tonnes in the world.

In comparison with the positive evolution of potato in the last decade (1993-2003) on the world level (increase of area with 5.5 %, increase of total production with 3.5%, increase of trade with 2.6%), there has been recorded a negative situation in Europe (decrease of area by 17%, decrease of production by 24%, decrease of yield by 8%, decrease of seed potato used by 20%, but a positive situation regarding the trade of potato (increase of quantity with 15% and increase of value of trade with 33%. The highest decrease has been recorded in the group of ten countries (Czech Republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia) which became members of the EU since May 1st: approx. 52% of area, 59% of production, approx. 47% of seed potato used and 80% of export.

For the forst time in the last ten years, Europe has lost the world supremacy reagrding area and production of potato.

There is a big gap regarding the level of potato yield between the groups of the countries in Europe: around 30 to/ha in the EU-15 (with over 40 to/ha in the United Kingdom, The Netherlands, Denmark, followed by France and Germany with nearly 40 to/ha), approx. 17 tonnes/ha in the EU-10 and approx. 11 to/ha in the Russian Federation.

The main factors which can improve the potato yield in the Central and Eastern Europe countries, including the Russian Federation, are the following: concentration of potato crops in bigger farms, using of healthy (certified) seed potato, improvement of technology level, development of potato processing. A strong help for the development of potato industry in the central and East-European countries could come from the EU-15 + EU-10 countries, by training of the young scientists and technical staff (farmers).

Keywords: potato area, production, yield, trade, seed potato, variety

INTRODUCTION

The precise time that potato was first used in cultivation is unknown, but it is thought to be some 7 to 10,000 years ago in the region of Lake Titicaca of Peru/Bolivia (Hawkes, 1993).

INFLUENȚA CONDIȚIILOR METEOROLOGICE ASUPRA EVOLUȚIEI POPULAȚIEI DE AFIDE (VECTORI AI VIRUSURILOR), LA S.C.D.A. SUCEAVA (1997 – 1999)

Ioan GONTARIU[1], Daniela DONESCU

REZUMAT

Calitatea recoltelor de cartof sunt influențate direct de calitatea materialului de plantat. Majoritatea speciilor de afide care transmit virusurile cartofului în zona de nord a Podișului Sucevei se dezvoltă pe gazde diferite.

Asupra frecvenței zborului afidelor (total specii) un rol important îl au condițiile meteorologice, de care depind înmulțirea acestora cât și facilitatea deplasării lor. Au fost luate în studiu un număr de 6 specii de afide și anume: *Myzus persicae, Aphis frangulae, Aphis nasturtii, Aphis fabae, Acyrtosiphon pisum* și *Rhopalosiphum sp.*.

Determinările realizate pe parcursul celor trei ani, evidențiază că zborul afidelor a avut o frecvență sporită în anii 1997–1999, când temperaturile medii decadale din a doua jumătate a lunii iunie și prima jumătate a lunii iulie au fost mai mari de 18°C, când nivelul de umezire pluvială (i.u.p.) nu a depășit de două ori necesarul de precipitații.

Cuvinte cheie: afide, virusuri, cartof sămânță, condiții climatice.

INTRODUCERE

Afidele constituie cel mai mare grup de vectori virotici, deoarece transmit un număr mare de virusuri fitopatogene. De aceea principalul obiectiv al producătorilor de cartofi pentru sămânță nu constă doar în a combate afidele deja instalate în culturi, ci mai ales de a găsi cele mai eficiente mijloace de prevenire a eliminării acestora (DONESCU, 1997).

Între afide și virusuri există o relație strânsă, în sensul că afidele sunt mijloace de răspândire a virusurilor, iar virusurile îmbunătățesc calitatea plantelor ca suport de hrană pentru afide.

Încă de la începutul secolului XX au fost întreprinse cercetări cu privire la identificarea agenților transmițători de boli virotice. Botjes (1920) considera afida verde a piersicului (*Myzus persicae Sulz.*) ca principal transmițător al virozelor la cartof și în special al virusului Y (streack), al virusului răsucirii frunzelor de cartof (PLRV) și a virusului A, fapt confirmat ulterior prin numeroase cercetări asupra biologiei vectorului și a modului de transmitere a virusurilor (MAN și colab., 1969).

Frecvența infecțiilor primare cu virusul M la soiurile rezistente s-a corelat pozitiv numai cu zborul speciilor *M. persicae* și *Macrosiphum euphorbiae* din perioadele

UTILIZAREA HĂRŢILOR DE CONDUCTIBILITATE ELECTRICĂ A SOLULUI ÎN PERFECŢIONAREA TEHNOLOGIILOR DE CULTIVARE A CARTOFULUI ÎN AGRICULTURA DE PRECIZIE (CONELAP). REZULTATE PRELIMINARE PRIVIND MODELUL EXPERIMENTAL

Olteanu Gh.[1], *Oltean M.I.*[1], *Cramariuc R.*[2], *Ianosi Maria*[1], *Pamfil Gh.*[1], *Turcu Catalina*[3], *Aldea C.*[1]

[1] Institutul de Cercetare-Dezvoltare pentru Cartof şi Sfeclă de Zahăr
[2] CCEE Bucureşti
[3] Universitatea TRANSILVANIA Braşov

Summary

Potato is one of the most intensive crops, requiring great amounts of technological resources, at high costs and a negative impact on the environment. The improvement of cropping technologies imposes the promotion of some new methodologies. The scientific and technological achievements have encouraged the introduction of automatization and IT technology within the farming techniques (Olteanu et al., 2002).

The precision farming system is now very alike to achieve, especially the optimization of the chemical resources by using the most recent scientific conquests during the management process (the systemic approach, modeling and simulating of the processes, utilization of the decision support systems - DSS, the geographical information system - GIS, the global positioning system - GPS, the satellite analysis, monitoring the resources and the evolution of crops).

The paper presents the preliminary results concerning the design, the creation, experimentation and promotion of static and mobile device for monitoring the electrical conductibility. Experimental field trial was divided into 230 uniform of 15 sqm. It have been accomplished measurements and analisys for: electrical vonductibility, soil humidity, pH, texture, humus, N, P, K etc. For these parameters it have been calculated statistical indexes (minimum, maximum, standard deviation, variation coefficent). Data of electrical condctibility were intrpolated with kriking method.

The solution we propose is a novelty for our country; it presents financial, reliability and exactitude advantages in comparison with the method of chemical analyses of quantitatively limited samples.

Cuvinte cheí: Resurse fizico-chimice în sol, Conductibilitate electrică a solului, Productivitate culturi, Agricultură de precizie.

INTRODUCERE

Cultura cartofului, una din cele mai intensive culturi, necesită cantităţi mari de resurse tehnologice, cu costuri ridicate şi impact negativ asupra mediului. Perfecţionarea tehnologiilor de cultivare necesită promovarea unor metodologii noi, în acord cu exigenţele calitative, de eficienţă economică şi protecţia mediului cerute de UE. Realizările ştiinţifice şi tehnologice moderne au încurajat

EFFECTS OF MINITUBERS SIZE AND PLANTING DENSITY ON SEED POTATO YIELD OF ROMANIAN VARIETIES

Marius BĂRDAŞ[1]
[1]I.C.D.C.S.Z. Braşov

SUMMARY

Minitubers size and plant density influenced in a different manner the total yield and as well as seed potato yield (standard size: 30-55 mm diam.) in dependence of variety. The lowest total yield was achieved when planting minitubers sized 5-15 mm, diam., being of 16,5 to.ha^{-1} to 26 to.ha^{-1} in Roclas and Rustic varieties, and the highest total yield was obtained when planting tubers sized 25-35 mm diam, being of 31 to.ha^{-1} in Rustic variety and over 35 to.ha^{-1} in Runica variety.

Increasing planting density from 5 to 8 plants/m^2 is only reasonable in the case od minitubers sized 5-15 mm diam. and , respectively, 15-25 mm diam.

Keywords: seed potato, minitubers, stem, density, variety, field.

INTRODUCTION

Researches were done with the purpose of studying the potential use of minitubers planted directly in the field and their behaviour under the ecological condition from Lăzarea, Harghita county; the experiments were done in the clonal field of I.C.D.C.S.Z. Braşov, România.

These researchers join the world concernings regarding the optimum stem density of potato crops by directly field planting of minitubers (Lommen, W.J.M. şi Struik P.C.1995; 1996; Dolnicar, P.,1996 ; Roztropowicz, S., Szutkowska, M., Wierzejska, A., & Zarzynska, K., 1996).

This paper presents a synthesis of the main results obtained in the period 1998 – 2000 regarding the main stems number per hectare, seed yield, total yield and the total tubers number from Runica, Roclas, and Rustic varieties.

MATERIAL AND METHODS

The reseaches were done in the period 1998-2000 at The Centre for Clonal Material production from Lăzarea, Harghita County, affiliated to I.C.D.C.S.Z. Brasov.

The altitude of the experimental field was 1000 – 1200 m above sea level.

The soil type is a typical luvic brown very deep loamy with reasonable stone content.The physical aspect of the soil is normal and the the soil surface is covered by stones in a pereentage of 10–20%.

VOL. 60/2004

BULETINUL

UNIVERSITĂȚII DE ŞTIINȚE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA

AGRICULTURĂ

BULLETIN OF THE

UNIVERSITY OF AGRICULTURAL SCIENCES AND VETERINARY MEDICINE CLUJ-NAPOCA

AGRICULTURE

Manuscript submission. All initial contributions and correspondence, including three of the manuscript plus artwork, should be sent to EPA®, 3-5 Mănăştur Street, Cluj-Napoca, RO-400372; phone +40 64 596384, fax. +40 64 593792; e-mail: eap@usamvcluj.ro
Because of occasional serious delay in transit, authors and reviewers are urged to send manuscripts and proofs by airmail class.

Printed by AcademicPress® 3-5 Mănăştur Street, Cluj-Napoca, RO-400372. Published biannually by the University of Agricultural Sciences and Veterinary Medicine 3-5 Mănăştur Street, Cluj-Napoca, RO-400372, www.usamvcluj.ro

This volume contents the scientific papers of the Symposium "Prospects of the 3rd Millenium Agriculture"
Sections: 1. Agriculture; 2. Environmental Protection and Rural Development; 3. Food Science and Technology.
October, 20-23, 2004, Cluj-Napoca, Romania

Buletinul USAMV-CN, 60/2004
ISSN 1454-2382

PREVENTING POTATO SPROUTING DURING STORAGE USING ESSENTIAL OILS EXTRACTED FROM MEDICINAL AND AROMATIC PLANTS.

Donescu V., Dana Bobiț, Daniela Donescu,

Research and Development Institute for Potato and Sugar Beet,
2 Fundăturii Str., 500470 Brașov, Romania. E-mail: donev@potato.ro

Key words: cartof, păstrare, uleiuri volatile, pierderi, încolțire

SUMMARY

The technological and quality traits required from ware and processing potato impose the adoption of some up-to-date storing techniques, unpoluting and easy to access. This paper aims to establish the technical conditions for the application of the new unconventional storage methods: chemical treatments with natural inhibitors. Such researches have been done years ago, particulary in The Netherlands; the main inhibitor was S-carvone, extracted from mature seeds of *Carum carvi*.

Treatments with oils extracted from 3 species of medicinal and aromatic plants: caraway - *Carum carvi* L.., mint - *Mentha crispa* L. and dill - *Anethum graveolens* L. were done. The experiments were carried out in the research store house of ICDCSZ Brasov. The treatments have been applied in the second part of the storage period, after the end of the dormancy. Four potato varieties were studied: Roclas, Romano, Sante and Desiree, each of them being treated with all the 3 natural extractions. The dispersion of the volatile oils was made 6 times per day, 30 minutes each time, using an electric device for dispersing aerosols and an electric programming clock. A dose of 0.16 ml of volatile oil per day was administered, which corresponds to a consumption of 0.007 ml of volatile oil/day/kg. The temperature in the storage room was raised to 12°C in order to create favourable conditions for the natural sprouting. Temperature and humidity parametres have been daily recorded. The relative humidity of the air has remained around 95%.

We pursued the influence of the treatments on losses due to sprouting, on weight losses and total losses.

The best results were attained by using volatile oil extracted from the caraway, with an average reduction of 56.25% concerning losses due to sprouting and a reduction of sprouts' length of 48.86% for all the varieties in comparaison with the control.

All potato varieties responded in a favourable manner to the treatments, the level of losses being specific to each variety.

References:

1. Diepenhorst, P., K.J. Hartmans, 1993. Carvone, a natural sprout inhibitor. Abstracts 12th EAPR Tr.Conf. Paris, 1993.
2. Hartmans, K.J., P. Diepenhosrt., 1994. The use of carvone as a sprout inhibitor for potatoes. Physiology Section Meeting, Udine.
3. Oosterhaven, K., K.J. Hartmans, H.J. Huizing, 1995. Inhibition of potato (*Solanum tuberosum*) sprout growth by the monoterpene S-carvone: Reduction of 3-Hydroxy-3-methylglutaryl coenzyme A reductase activity with an effect on its mRNA level. J.Plant Physiol., Vol. 41, pp. 463-469.

VOL. 60/2004

BULETINUL

UNIVERSITĂȚII DE ȘTIINȚE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA

AGRICULTURĂ

BULLETIN OF THE

UNIVERSITY OF AGRICULTURAL SCIENCES AND VETERINARY MEDICINE CLUJ-NAPOCA

AGRICULTURE

Manuscript submission. All initial contributions and correspondence, including three of the manuscript plus artwork, should be sent to EPA®, 3-5 Mănăştur Street, Cluj-Napoca, RO-400372; phone +40 64 596384, fax. +40 64 593792; e-mail: eap@usamvcluj.ro
Because of occasional serious delay in transit, authors and reviewers are urged to send manuscripts and proofs by airmail class.

Printed by AcademicPress® 3-5 Mănăştur Street, Cluj-Napoca, RO-400372. Published biannually by the University of Agricultural Sciences and Veterinary Medicine 3-5 Mănăştur Street, Cluj-Napoca, RO-400372, www.usamvcluj.ro

This volume contents the scientific papers of the Symposium "Prospects of the 3rd Millenium Agriculture "
Sections: 1. Agriculture; 2. Environmental Protection and Rural Development; 3. Food Science and Technology;
October, 20-23, 2004, Cluj-Napoca, Romania

Buletin USAMV-CN, 60/2004
ISSN 1454-2382

THE CORRELATIONS BETWEEN THE APHIDS FLIGHT AND HAULM KILLING OF SEED POTATOES

Oltean Ioana, M. Savatti, Gh. Oltean, L. Muntean, Marioara Urda.

University of Agricultural Sciences and Veterinary Medicine, Faculty of Agriculture, 3-5 Manastur street, 3400, Cluj-Napoca, Romania, e-mail: ioana_oltean@hotmail.com.

Key words: correlation, potato, aphids, abundance, dominance, vegetation.

SUMMARY

The study of the correlations between climateric conditions (temperature and precipitations) and aphids populations has been done to determine a certain termic period which influenced significativ or insignificativ the abundance of aphids populations captured during potatoes seed vegetation. The connections between certain studied groups of aphids and the influence of weather conditions per decade over aphids abundance captured during potatoes seed vegetation, were tested trough coefficients significations of simple, partial and complex correlation (1).

The experiment has been placed in potatoes culture for seed, from Potato Research Institute – Brasov. Aphids were catched using the method of yellow trays (Moericke). To establish the activity of species were used analytic sign: number (abundance – A) and relative dominance (D), after Bodenhaimer (1955) and Balog (1958), written by Varvara (1989). (2)

As a result of the correlations that has been done between weather conditions per decade and total number of aphids from vegetation period of seed potatoes it is obvious that none of thouse three years wich has been analyzed has not a real significativ connection.

Value coefficients between climateric conditions (temperature and precipitations) per decade and total number of aphids populations. Braşov, 2001-2003

year	r(xz)	r(yz)	Significance
2001	-0.31	0.19	i.s.
2002	-0.12	-0.26	i.s.
2003	-0.17	0.50	i.s.

P5% = 0.58; P1% = 0.71

i.s.- insignificativ
r(xz)- temperature correlation - total number of aphids
r(yz)- precipitation correlation - total number of aphids

The results hwo were taking in acount in period 2001-2003, it is imposed the catch and the correlation of aphids total number with climateric factors (temperature and precipitations) daily registered and processing this date.

BIBLIOGRAPHY

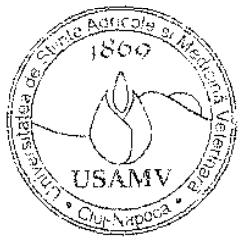
1. Ardelean M., R. Sestras, Mirela Cordea, 2002, Tehnica experimentala horticola. Ed. Academic Pres, Cluj-Napoca.
2. Varvara M., Donescu Daniela, 1998, Observatii coenologice asupra populatiilor de *Carabeide*(in curs de aparitie)

VOL. 60/2004

BULETINUL

UNIVERSITĂŢII DE ŞTIINŢE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA

AGRICULTURĂ



BULLETIN OF THE

UNIVERSITY OF AGRICULTURAL SCIENCES AND VETERINARY MEDICINE CLUJ-NAPOCA

AGRICULTURE

Manuscript submission. All initial contributions and correspondence, including three of the manuscript plus artwork, should be sent to EPA®, 3-5 Mănăştur Street, Cluj-Napoca, RO-400372; phone +40 64 596384, fax. +40 64 593792; e-mail: eap@usamvcluj.ro
Because of occasional serious delay in transit, authors and reviewers are urged to send manuscripts and proofs by airmail class.

Printed by AcademicPress® 3-5 Mănăştur Street, Cluj-Napoca, RO-400372. Published biannually by the University of Agricultural Sciences and Veterinary Medicine 3-5 Mănăştur Street, Cluj-Napoca, RO-400372, www.usamvcluj.ro

This volume contents the scientific papers of the Symposium "Prospects of the 3rd Millenium Agriculture "
Sections: 1. Agriculture; 2. Environmental Protection and Rural Development; 3. Food Science and Technology;
October, 20-23, 2004, Cluj-Napoca, Romania

Buletinul USAMV-CN, 60/2004
ISSN 1454-2382

Preliminary results regarding the creation of a device for measuring the electric conductibility and tracing the maps of electric conductibility of the soil

Olteanu Gh.[1], Cramariuc R.[2], Oltean M.I.[1], Ianosi Maria[1], Turcu Catalina[3]

[1]. Research and Development Institute for Potato and Sugar Beet,
2 Fundăturii Str., 500470 Braşov, Romania. E-mail: olgeo@potato.ro
[2]. CCEE Bucuresti
[3]. Transilvania University Braşov

Key words: precision farming, electric conductibility of the soil

SUMMARY

Potato is one of the most intensive crops, requiring great amounts of technological resources, at high costs and a negative impact on the environment. The improvement of cropping technologies imposes the promotion of some new methodologies. The scientific and technological achievements have encouraged the introduction of automatization and IT technology within the farming techniques (Olteanu et al., 2002).

The precision farming system is now very alike to achieve, especially the optimization of the chemical resources by using the most recent scientific conquests during the management process (the systemic approach, modeling and simulating of the processes, utilization of the decision support systems (DSS), the geographical information system (GIS), the global positioning system (GPS), the satellite analysis, monitoring the resources and the evolution of crops).

The paper presents the preliminary results concerning the design, the creation, experimentation and promotion of a skilled mobile system for monitoring the useful chemical and physical parameters of the soil, by measuring and mapping the electric conductibility of the soil and using this information in order to improve the potato crop management in the framework of the precision farming.

The solution we propose is a novelty for our country; it presents financial, reliability and exactitude advantages in comparison with the method of chemical analyses of quantitatively limited samples.

References:

1. Olteanu, Gh., Oltean, I.M, Oltean Ioana, 2002. Agricultura de precizie – un nou concept în cercetarea şi practica agricolă. În: Priorităţi ale cercetării ştiinţifice în domeniul culturii de camp, Coord. C. Hera şi Ilaria Doucet. ASAS. Ed. CERES, 99-108.

VOL. 60/2004

BULETINUL

UNIVERSITĂȚII DE ŞTIINȚE AGRICOLE ŞI MEDICINĂ VETERINARĂ CLUJ-NAPOCA

AGRICULTURĂ

BULLETIN OF THE

UNIVERSITY OF AGRICULTURAL SCIENCES AND VETERINARY MEDICINE CLUJ-NAPOCA

AGRICULTURE

Manuscript submission. All initial contributions and correspondence, including three of the manuscript plus artwork, should be sent to EPA®, 3-5 Mănăştur Street, Cluj-Napoca, RO-400372; phone +40 64 596384, fax. +40 64 593792; e-mail: cap@usamvcluj.ro
Because of occasional serious delay in transit, authors and reviewers are urged to send manuscripts and proofs by airmail class.

Printed by AcademicPress® 3-5 Mănăştur Street, Cluj-Napoca, RO-400372. Published biannually by the University of Agricultural Sciences and Veterinary Medicine 3-5 Mănăştur Street, Cluj-Napoca, RO-400372, www.usamvcluj.ro

This volume contents the scientific papers of the Symposium "Prospects of the 3rdMillenium Agriculture"
Sections: 1. Agriculture; 2. Environmental Protection and Rural Development; 3. Food Science and Technology;
October, 20-23, 2004, Cluj-Napoca, Romania

Bulletin USAMV-CN, 59/2003
ISSN 1454-2382

THE ACCOMPLISHMENT OF AN EXPERIMENTAL MODEL THROUGH INTEGRATION OF MEDICINAL PLANTS AND HERBS WITH REPELLENT AND INSECTICIDE EFFECT IN THE POTATO CROP FOR THE BIOLOGICAL CONTROL OF THE MAIN PESTS PART 2: PARTIAL RESULTS REGARDING THE PRODUCTION VOLUME OF MEDICINAL PLANTS AND POTATOES OBTAINED IN THE EXPERIMENTAL MODEL

Dana Bobiţ, Adriana-Cristina Tofan, Gh. Olteanu

Institute for Research and Development for Potatoes and Sugar Beet,
2, Fundăturii Street, 500470 Braşov, Romania, email: bobitd@hotmail.com, olgeo@potato.ro
University of Agricultural Sciences and Veterinary Medicine, Faculty of Horticulture,
59, Mărăşti Blv., 011464 Bucharest, Romania, email: adriana_tofan@yahoo.de

Keywords: perennial medicinal plants, experimental model, repellent and insecticide effect, biological control, production on lot

SUMMARY

The considerations upon the medicinal plants and herbs as a way of restoring the production potential of the soil, but also as a source of biological control of crop pests, were the starting point on the accomplishment of a research project for the period 2001-2004 and a concern of strong present interest also in the countries of the European Community. The project gathers the participation of three partners with accurate duties and objectives in the development of the research during the three proposed years, as well as for the completion and synthetization of results.

During the second year of growing (2004), we have studied 10 perennial and 16 annual medicinal plant species from a bio-morphological perspective, as well as the same number of variants represented by the potato.

We have watched over the influence of each neighbourhood of perennial medicinal plants upon the potato and the other way round, as well as the influence of the annual medicinal plants as previous crop plants of the potato. This influence is interesting especially from the point of view of the passing through the growth phases (vegetation), of the bio mass and of the obtained production volumes (the objective of this study), of their qualities, as well as from the point of view of the pests, provided that they haven't been subject to any chemical treatment.

The synthetization of the results will provide us new information on the destination of the medicinal plant crops cultivated under these conditions (production of raw material or of seed). It will be obvious if this solution can be applied to the small medicinal plant grower, as well as to the potato grower.

BIBLIOGRAPHY

1.Sattler F., Wistinghausen E.V.,1994, Ferma biodinamică, Ed. Enciclopedică, Bucharest..
2.Bobiţ Dana, 1999, Plantele medicinale şi aromatice - o soluţie pentru cultura cartofului în condiţiile agriculturii biologice, Rev. "Cartoful "
3. Bobiţ Dana, 2000, Rolul plantelor medicinale şi locul lor în cadrul unui asolament, Rev. "Cartoful "

16th Triennial Conference of the EAPR
European Association for Potato Research
EAPR-2005, July 17 to 22, 2005, Bilbao, Spain

ABSTRACTS OF PAPERS AND POSTERS

I
PROGRAMME AND ORAL PRESENTATIONS

E. Ritter, A. Carrascal
Neiker - Instituto Vasco de Investigación y Desarrollo Agrario

EUSKO JAURLARITZA GOBIERNO VASCO
NEKAZARITZA ETA ARRANTZA SAILA
DEPARTAMENTO DE AGRICULTURA Y PESCA

Eusko Jaurlaritzaren Argitalpen Zerbitzu Nagusia
Servicio Central de Publicaciones del Gobierno Vasco

Vitoria-Gasteiz, 2005

USING SOIL ELECTRICAL CONDUCTIVITY MAPS IN IMPROVING OF POTATO CROP TECHNOLOGY IN PRECISION FARMING

Olteanu Gh.[1], Cramariuc R.[2], Oltean M.I.[1], Ianosi Maria[1], Turcu Catalina[3], Pamfil Gh.[1]& Aldea C.[3]

[1] *Research and Development Institute for Potato and Sugar Beet, Fundăturii str., 2, 500470 Brasov, Romania, E-mail: olgeo@potato.ro*
[2] *CCEE Bucuresti.*
[3] *TRANSILVANIA University, Brasov.*

Key words: Chemical and physical resources in the soil, soil electrical conductivity, precision farming.

INTRODUCTION

Potato is one of the most intensive crops, requiring great amounts of technological resources, at high costs and a negative impact on the environment. The improvement of cropping technologies imposes the promotion of some new methodologies. The scientific and technological achievements have encouraged the introduction of automatization and IT technology within the farming techniques (Olteanu et al., 2002).

The precision farming system is now very alike to achieve, especially the optimization of the chemical resources by using the most recent scientific conquests during the management process (the systemic approach, modeling and simulating of the processes, utilization of the decision support systems - DSS, the geographical information system - GIS, the global positioning system - GPS, the satellite analysis, monitoring the resources and the evolution of crops) (Olteanu et al., 2004).

The paper presents the preliminary results concerning the design, the creation, experimentation and promotion of static and mobile device for monitoring the electrical conductivity.

MATERIAL AND METHODS

Experimental field trial was divided into 230 uniform of 15 sqm. It has been accomplished measurements and analysis for: electrical conductivity, soil humidity, pH, texture, humus, N, P, K etc. For these parameters it have been calculated statistical indexes (minimum, maximum, standard deviation, and variation coefficient), and interpolated with kriging method.

For the parameters above the following statistical indices were computed: minimum, maximum, standard deviation, coefficient of variation, and histogram, using the statistics package MSTAT-C and SPSS. Space variation was analyzed through Spline interpolation, representation 2D-isolines and 3D (statistics package STATISTICA CSS) and through shaping the variogram for the data set, followed by kriging estimations for map representation (Minasney and colab., 2002; ESRI, 1996)

The measurements were made in the experimental field of ICDCSZ Brasov on a chernozem-type cambial soil. The plot was subdivided into 29 columns and 8 blocks (232 parcels) of 2.25 m x 6.50 m (14.625 sqm) and cultivated with potato applying a similar

BEHAVIOR OF NEW ROMANIAN POTATO VARIETIES

Bozeşan, I., Chiru, S.C., Bran, Ş., Hermeziu, Manuela & Donescu, V.

Research and Development Institute for Potato and Sugar Beet (ICDCSZ)
Braşov, 500470, 2, Fundăturii str., Romania, e-mail: icpc@potato.ro

INTRODUCTION

Plant breeding can be defined as an adapting process of plants (crops) to the technological system used at that moment by growers (Săulescu 1999). Plant breeding is an continuously process which have to develop in the same time (keep the step) with the changes of growing conditions, increasing virulence of pathogens by arising of new races, strains, biotypes and pathotype and also by permanent up to date of growers and consumers demands.

MATERIALS AND METHODS

During the breeding process in Romania and especially in the last decade many potato varieties were created and registrated. Normally is that the best from these to be multiplied. Thus on the basis of research data the best varieties proved to be the following:

- from the early varieties group: DACIA, ROCLAS and CHRISTIAN;
- from the middle late varieties group: AMELIA, TÂMPA and NICOLETA.

Yielding capacity was tested in the trial centers with different specific growing conditions from Romania. The potential yield was established in very favorable growing conditions for potato crop.

The resistance to disease and pests was evaluated in experimental trial fields and laboratory by provoked infections and infestations.

Quality features were determined in the laboratory and described the physical aspect, chemical composition, culinary quality and processing.

RESULTS AND DISCUSSIONS

Yielding capacity of romanian potato varieties included in the national seed potato production system is high. The potential biological yield was over 65 tones/hectare for early and middle early and over 70 tones/hectare for middle late varieties (table 1).

The potential yield of romanian potato varieties from the national seed potato system

Table 1

Variety	DACIA	ROCLAS	CHRISTIAN	AMELIA	TÂMPA	NICOLETA
Potential yield Tones/hectare	90,6	65,9	70,6	80,7	77,4	70,6

THE ACCOMPLISHMENT OF AN EXPERIMENTAL MODEL THROUGH INTEGRATION OF MEDICINAL PLANTS AND HERBS WITH REPELLENT AND INSECTICIDE EFFECTION THE POTATO CROP FOR BIOLOGICAL CONTROL OF MAIN PESTS

Dana Bobit[1] Adriana-Cristina Tofan[2] & Gh. Olteanu[1]

1) Research and Development Institute for Potato and Sugar Beet. 2, Fundăturii str. 500470 Braşov, Romania, email: danabobit@yahoo.com
2) University of Agricultural Sciences and Veterinary Medicine. 59, Mărăşti Blv:. 011464 Bucharest, Romania.

Keywords: perennial medicinal plants, experimental model, repellent and insecticide effect, biological control, production on lot

INTRODUCTION

The considerations upon the medicinal plants and herbs as a way of restoring the production potential of the soil, but also as a source of biological control of crop pests, were the starting point on the accomplishment of a research project for the period 2001-2004 and a concern of strong present interest also in the countries of European Community.

The main objectives were:
The biological control of principal pests of potato through placement in the traditional rotation of medicinal plants with repellant and insecticide effect;.

Establishment of a method to set up each studied species in the frame of the experimental model and to elaborate a crop technology.
Promotion of principles of biological agriculture and extension of cultivated medicinal plants
Introduction of medicinal and aromatically plats with repellant and insecticide effect in potato rotation and verification of their influence as precursor and neighbored plant upon the yield;

The growth of the cultivated area with medicinal plants in the organic farms.

MATERIAL AND METHODS

During 2003 we studied 16 species of annual medicinal plants as precursor (EM-1), after them we set up in 2004 potato crop.

To analysed the influence of the neighborhood upon potato yield (EM-2), we set up 10 experimental lots with perennial medicinal plants. In 2003 they alternate each with a lot of annual species of *Trigonella foenum graecum L.* (Fenugreek) becoming 2004 the lot for the potato crop, variety OSTARA. No chemical and herbicides treatments were applied.

We evaluate the yield on lot (kg 30 m^2) and the medium yield, the results being compared with yields obtained in condition of classical technology.

The perennial species was planted (2003) in alternation with an annual species mend to be the precursor plant of the potato crop (2004). We studied the most efficient multiplying method for the proposed goal, the behavior of the species, the running through the vegetation phases and the yields obtained in the first and second year of vegetation at the medicinal plants.

EFFICACY OF FUNGICIDE PROGRAMMMES FOR THE CONTROL OF LATE BLIGHT IN ROMANIA

Manuela Hermeziu & R. Hermeziu

Research and Development Institute for Potato and Sugar Beet (ICDCSZ)
Brasov, 500470, 2 Fundaturii, Romania, e-mail: icpc@potato.ro

Keywords: late blight, fungicides, production

INTRODUCTION

Late blight caused by *Phytophthora infestans* (Mont.) de Bary remains the greatest potential disease to the potato crop in Romania. The climatic conditions are favorable to potato production and also favor blight.
Usually foliage infection develops early enough to reduce yield.
Potato production answer very well to repeteated and frequent fungicide applications knowing that almost potato cultivars are susceptible to blight (Louise Cooke and &,1996)

Field experiments were conducted between 2003 and 2004 to determine the effectiveness of fungicide spray programme for the control of potato late blight. We made trials in Potato Research Institute Brasov and to a farmer in Halchiu.
Trials relied in natural infection in both location and we establish an alternative usage of some fungicides very used in potato blight control.

METHODS

Trials were carried out in 4 replicates plots in a randomized complete block, 5 rows each with 20 plants.
In Potato Research Institute in both years it was used Sante variety, cultivar with medium resistance to *Phytophthora*.
In Halchiu in 2003 it was used Santana variety, cultivar moderately susceptible to blight and in 2004 it was used Kondor variety, an other cultivar moderately susceptible to blight
Planting was made in 23nd April 2003 and in 5th 2004
Late blight apparence: 2003 – 23rd July;
2004 – 21st (29th) July

Poster 133

USING OF NEW METHODS IN POTATO MICROTUBERS PRODUCTION - TEMPORARY IMMERSION SYSTEM

Roşu, R.[1], Rolot J.L.[2], Chiru N[1]. & Chiru S[1]

[1]*Research and Development Institute for Potato and Sugar Beet Braşov, 500470, 2, Fundăturii str., Romania, e-mail: icpcz@potato.ro*
[2]*Section Systemes Agricoles-CRA Libramont, Belgium*

SUMMARY

The variety, as biological resourse, represents one of the most important factors for the high, constant and economic yields achievement. Quantity of the certificated seed potato is influenced more than 50% by the biological and phytosanitary quality of the planting material. Seed potato production represents a complex, laborious scientific activity which implies a bigger concern than seed reproduction, because of the foolowing: progressive diminuation of production caused by viral and physiological degeneration, very small multiplication rate (1:4-1:10) and high water content and damage sensitivity of the tubers which impose special storage conditions. The need to improve the seed potato imposed a new planting material production scheme by „in vitro" multiplication technique ending at virus-free microtubers obtaining, microtubers which represent on important step in rapid multiplication of the romanian potato genotypes.

In order to obtain a higher number of bigger size microtubers than using the classical method there was tested a new method: temporary immersion in liquid medium. The preliminary researches were initiated with Romanian varieties Roclas and Christian and Belgian variety Gasoré. The system requires some further improvements, therefore the results obtained are partial and relevant just in the case of variety Roclas.

Keywords: in vitro, tuberization, microtubers, temporary immersion

INTRODUCTION

The use of liquid medium for microtubers production increased the number of microtubers and their size, simplifies handling, reduces production costs and is the best way to achieve automation. However there are some disadvantages: hyperhydricity and vitrification. To avoid these problems we developed a temporary immersion system. This kind of system was tested by other researchers too: C. Tersson and D. Alvard (1999), M. Akita and S. Takayama (1994), E. Jiménez (1999) etc.

STUDIES ON POTATO PRODUCTION FROM TRUE POTATO SEED IN ROMANIA

Prodan M-A, Hermeziu R., Bozeşan I & Chiru S.[1]

[1]*Research and Development Institute for Potato and Sugar Beet, Braşov*

SUMMARY

The potato (*Solanum tuberosum*) can be propagated in two ways, vegetatively (clonally) and sexually. Currently commercial potato production throughout the world is almost completely based on vegetative propagation. However, vegetative multiplication system is not without problems, which includ: disease transmission, bulkiness, low multiplication rate, high transport and storage cost and perishability of the seed tubers. In order to improve the supply of potato planting material, ther is an on-going research for developing new ways of potato multiplication, like sexual propagation. True potato seed is already a promising alternative in different regions throughout the world, many of these countries applying with success this new system of potato multiplication.
KEYWORDS: potato, TPS, seedling, isogenous potato line

INTRODUCTION

True potato seed technology is based on the natural ability of the potato to produce flowers, which are then fertilized and set berries that contain potato seed. The botanical seed (also known as true potato seed or TPS), which is extracted from the potato berries is then used as planting material. While several hundred diseases can be transmitted by the vegetative multiplication of the crop, only four diseases can potentially be transmitted through the botanical seed. The planting of one hectare of potatoes with botanical potato seed requires from 100 to 250 grams of seed, which is considerably less than the 2,000 to 3,000 kg of seed potatoes that are commonly used. These small seeds have very little food reserves to maintain the developing seedling after germination. Therefore, this new technology requires different agronomic practices compared to a seed tubers planting. Most important differences related to seed bed preparation, pre-plant pesticide and fertilizer application, seed spacing, depth placement and irrigation.

MATERIALS AND METHODS

Two isogenous potato lines, *MINDY* and *ZOLUSHKA*, have been taken into study, that were bred by the dutch company Bejo and are being studied at Research & Development Institute for Potato and Sugar Beet (ICDCSZ) Braşov. The breeding of these lines is based on a potato research programme, aiming at promoting the varieties obtained of true potato seed, adaptable to the different climatic conditions in the different parts of the world.

Braşov county is situated in a muntainous region of Romania, and that is why the most suitable method was the cultivation in protected spaces. The seeding was made at a very high density (approx. 400 seeds/m^2), the seeding depth being of 1 cm. The plants emerged 9 days after the seeding. The optimal temperature for germination and emergence ranges between 15 and 25°C. When the seedlings raised to approx. 10 cm in hight (approx. 20 days), they were transplanted in seedbeds, at a density of 150 plantlets/m^2.

The harvested minitubers were cleaned of the adherent ground, graded, packed in paper bags, labelled and stored under conditions of controlled temperature and humidity.

BREEDING AND SEED POTATO PRODUCTION IN ROMANIA

S.C. Chiru, I. Bozeşan, Nicoleta Chiru & Roxana Roşu

Research and Development Institute for Potato and Sugar Beet(ICDCSZ)

Brasov 500470,2 Fundaturii str.,Romania,e-mail:icpc@potato.ro

INTRODUCTION

Potato breeding has as permanent responsibility the creation of new good varieties for a certain period (Bozeşan, 2002). From this point of view, breeding can be defined as a plants accommodation process at the technological system used by growers at a some time (Săulescu, 1999).

In Romania, variety creation and seed production have been developed as a necessity, due to potato crop expansion on entire country (280000 ha), in very diversified ecological conditions, as well as by reason of the economic importance of this crop in alimentation, as forage and as staple for industry and processing.(Chiru and Olteanu,2004)

MATERIAL AND METHOD

Romania economy, developed as a free market system , spell the competition and enter on sale new potato varieties and seed of appropriate phytosanitary quality. Therefore, the new potato varieties and the seed produced in Romania, have to align to the international requirements from all the viewpoints.

Potato breeding program is done only in ICDCSZ-Brasov network. Every year about 100000 seedlings are produced and their progenies are tested for yield capacity, tuber quality, diseases and pest resistance(viruses, late blight, black scab,golden nematode)

As parental material were used 45 potato varieties, from the world assortment,12 wild and savage species of the genus *Solanum* and 5 genitors with known heredity belonging to the genus *Solanum*, existing in germoplasm collection from Braşov.(750 genotypes) (Bozeşan et al., 1996).

Mainly, hibridization, followed by clonal individual selection have been used. We utilized also unconventional methods , as haploidy and mutagenesis, for obtaining genitors with known heredity .

Seed potato production system in Romania is based on virus-free initial material production by meristem cultures and *in vitro* micropropagation (Chiru, 2002). The biological material obtained, virus-free, is multiplicated in isolated and altitude (1200m) conditions, as clonal material.

RESULTS AND DISCUSSIONS

Breeding and seed production constituted a priority for the potato crop. Thus, in the last 15 years
were registered over 40 new Romanian potato varieties in the National List. Some of them(ROCLAS, NICOLETA, MAGIC REDSEC, ROBUSTA), the most performante, are multiplicated in the National System of Seed Potato Production.

THE DYNAMIC CHARACTERISTICS OF POTATO TUBERS SPROUTING DURING STORAGE

Donescu V & Chiru S
Research and Development Institute for Potato and Sugar Beet
Braşov, 500470, 2, Fundăturii str., Romania, e-mail: icpc@potato.ro

Keywords: sprouting, conservation, dynamic and typ of sprouting

INTRODUCTION

Sprouting is a natural process, which take place after breaking the tuber dormancy. It is favorised by enviroumental conditions and influenced by phisiological state of tubers (Ittersum, 1992, Muresan, 1976). Due to diferences observed during many years, on different typ of sprouting of potato varieties during storage, we started a series of study upon this phenomen, according with varieties, storage conditions and agroecological factors of vegetation period (Donescu, 1998).

The study was done on 17 romanian and foreigner potato varieties, during 3 years, on normal storage conditions. Analysing the experimental results with a exponential equation and graphical representation, alloweded to separeted potato varieties on 4 dynamic groups: with very rapid sprout, rapid, average and slow.

The form of buds is different also, depending on varieties. Between the typ of sprouting and his dynamics exist a correlation.

MATERIAL AND METHODS

From each varieties, 50 tubers on average size, healthy, unsprouted, harvested on maturity state were sampled. Tubers were stored at temperatures between 8°C-12°C and periodically analysed (7 days). The number of buds bigger than 3 mm were determined. Observations on one variety were finised when all the tubers sprouts. Number of days after which varieties sprouts 100% was determined. At the end of experiment, tubers weight, length and weight of buds were determined.

The experimental results were statistically analysed with exponential equation:

$$Y = b_0^{(b1*t)}$$

(t- represent an independent variable, days from harvest moment).

Values of exponential equation coefficients obtained, permmited the elaboration of graphics, on four distinct groups, according with dynamic of sprouting. These groups were mentained from a year to another, beeing on less mesure influenced by climatic condition of vegetation period or experimental ones.

RESULTS

The following varieties were placed on the first group: Fresco, Bârsa, and Super. Fresco variety sprouted very rapid, beeing out of dormancy at harvest time. Bârsa and Super varieties had a very short dormancy, a slow sprout, almost linear (Figure 1.), tubers beeing 100% sprouted at 98-102 days post harvest.

On second group (Figure 2) were included: Casin, Cibin, Rene, Sante and Eba varieties. On these varieties the sprouting was almost rapid, soon after harvest sprouted tubers were founded. On first phase the sprout was slowly, accelerated after 50-60 days. After 95-105 days almost 100% of tubers were sprouted.

Group 3 (Figure 3) contains 5 varieties (Ostara, Desiree, Roclas, Teo and Titus) with a longer dormancy period, of witch tubers do not sprout at all for 40-50 days. Then tubers sprouted

Poster 150

APHIDS IN SEED POTATO CROPS OF ROMANIA

Donescu D & Chiru S.

Research and Development Institute for Potato and Sugar Beet
Braşov, 500470, 2, Fundăturii Str., Romania, e-mail: icpc@potato.ro

Keywords: aphids, seed potato, virus vector.

INTRODUCTION

Aphids are one of the most widespread groups of pests in agricultural sistems. Plants may be affected directly and indirectly as a result of presence of aphid populations.

Direct effects come about through suction of feeding aphids, injection of active substance in saliva, interference with phisiological performance of crops and removal of amino-nitrogen from plants.

Indirect effects are caused by virus transmission, honedew excretion and influence on crop physiology.

The quality of seed potato production is dependent on structure and dynamics of aphid population. The damage to potato by aphids is mainly caused by virus transmission and virus attack. Viruses can lead to yield loss in potato crop becouse they cause infection disesses which are transferred with the seed tubers to the progeny crop.

Several aphid species can colonized potato plants in Romania: *Myzus persicae*, *Aphis nasturtii*, *Aphis frangulae*, *Aulacorthum solani*, *Macrosiphum euphorbiae*. All these species are important vectors of potato virus diseases.

In Romania yield loss producesed to plants secondarily infected with potato leaf roll virus (PLTV) can rise to 53%-81% and with potato virus Y (PVY) to 33%-89%, depending on the type of virus, the potato variety, rate of infection, growth and climatic conditions (Cojocaru, 1987).

Investigation were done to evaluate the structure of aphid populations from main seed potato crops. The knowledge of abundance and the species composition of aphid are indispensable for the development of a control strategy against vectors of virus diseases.

The present work aimed at collecting data of aphid population and species diversity in romanian seed potato production areas.

MATERIAL AND METHODS

Seed potato crops from different zones (Brasov, Sfintu Gheorghe, Târgu Secuiesc, Miercurea Ciuc, Joseni, Munte, Lăzarea, Suceava, Ilisesti, Cluj) were monitored between 1996-2002.

Alata aphid monitoring was carried out by Moericke yellow water traps. Two Moericke traps (round, metalic, 10 cm. deep, and inside painted yellow), were installed at a heigh of 0,70 m., on each experimental area. Aphids were collected daily, stored in glass vials containing preserving liquid (2 volumes of ethyl alcool 90%, and 1 volume lactic acid 75% w/w)(Eastop and van Emden, 1972). Each year the traps remained on potato fields from mid April to end of September.

Aphid identification was based on the keys described by Taylor (1981), Müller (1975), Jacky and Bouchery (1980), Blackmann and Eastop (1984, 1994), Remaudiere and Seco Fernandez (1990). Systematics and synonymies were based on Remaudiere and Remaudiere (1997).

Potato developments in a changing Europe

edited by:
Norbert U. Haase
Anton J. Haverkort

Wageningen Academic
Publishers

ISBN-10: 90-8686-011-7
ISBN-13: 978-90-8686-011-1

First published, 2006

Wageningen Academic Publishers
The Netherlands, 2006

Advisory committee Potato Europe
4-6 September 2006, Hameln, Germany

- Dr. B.V. Anisimov, Russian Potato Research Institute, Russia
- Dr. H. Böhm, Europlant Pflanzenzucht GmbH, Germany
- F. Bork, Grimme Landmaschinenfabrik GmbH & Co KG, Germany
- J. Bruer, Stöver Produktions GmbH & Co KG, Germany
- Dr. A. von Chappuis, DLG, Germany
- Dr. S.C. Chiru, Institute for Potato and Sugarbeet, Romania
- Dykes, British Potato Council, United Kingdom
- J.E. Godfrey, R.J. & A.E. Godfrey, United Kingdom
- Prof. Dr. J.F. Guenthner, Idaho Center for Potato Research & Education, Univ. of Idaho, USA
- J.H.J. Haarhuis, Agricultural Promotion Projects, the Netherlands
- Prof. Dr. A. Hanafi, Institut Agronomique et Veterinaire Hassan II, Morocco
- Dr. A.J. Haverkort, Plant Research International, the Netherlands
- Dr. M. Huarte, National Potato Program Coordinator, INTA Balcarce, Argentina
- Eng. G.G. Meiborg, Farm Frites, Poland
- Dr. R. Peters, KTBL-Versuchsstation Dethlingen, Germany
- L. Pieterse, Global Potato Focus Inc., Canada
- H.W. Platt, Agriculture & Agri-Food, Canada
- J. Procházka, Europlant šlechtitelská spol.s.r.o., Czech Republic
- Dr. E.R. Ritter, Neiker, Spain
- M. Umhau, Oschatz (Sachsen), Germany
- Prof. dr. G. Wenzel, Technische Universität München, Germany
- Prof. Dr. E. Zimnoch-Guzowska, The Plant Breeding and Acclimatization Institute, Mlochów Research Center, Poland

Organisers

- DLG - Deutsche Landwirtschafts-Gesellschaft e.V.

Table of contents

Crop protection and fertilisation

Product quality and certification

Trade of seed and ware potatoes

Consumer behaviour and marketing

Actual state and future trends of the Romanian potato industry

S.C. Chiru, Gh. Olteanu and Elena Laura Dima
National Institute of Research and Development for Potato and Sugar Beet (NIRDPSB) P. O. Bo. 500470, Brasov, Fundaturii st. 2, Romania

Abstract

Romania is preparing to become a member of the European Union in 2007. The potato industry must be adapted to the European competitive system. According to the importance of the potato crop (area and total yield), the seed production, and the market demands for varieties and consumption (fresh consumption will still be on the first place), a current analysis of the Romanian potato industry and future tendency based on a SWOT interpretation (strength, weakness, opportunity, threat) is carried out.

Keywords: statistic data, varieties, seed production, SWOT analyses, EU accession

Introduction

Romania is situated in the South-East part of Europe, at the intersection of principal communication axes between North-South and East-West. With a total area of 238,391 km^2, almost as large as the United Kingdom (244,100 km^2), Romania would become the ninth largest country in an enlarged European Union with 27 members states. It will represent 5.4% of the area and 4.7% of the EU population (MAFRD, 2006).

The Romanian agriculture, although with a high natural potential, is still far away from a compatible level to EU structures. From the 23.8 million hectares of total area, agriculture amounts to 14.8 million hectares. The overall crop production covers 8.88 million hectares (2004), of which cereals account for 62%, oleaginous plants for 15%, and potatoes for 3.2% (Salasan, 2003).

Actual state

Potato production has a relatively long tradition in the Romanian agriculture, first references being made in Transylvania in the 18th century. From that time on, crop importance increased and potatoes are now considered as the "second bread" of Romania. Excepting the years between 1970-1990, when the potato production was concentrated on an industrial level, both in anterior periods and in the present situation small plots prevail.

The EU joining of Romania in 2007 imposes a new production system for potato growing (Olteanu, 1997, Chiru, 2006):

- Changing the mentality of stakeholders;
- Increasing the surfaces of agricultural exploitation;

DANUBE ADRIA ASSOCIATION FOR AUTOMATION & MANUFACTURING

DAAAM INTERNATIONAL VIENNA

www.daaam.com

ANNALS OF DAAAM FOR 2006 & PROCEEDINGS

OF THE 17TH INTERNATIONAL DAAAM SYMPOSIUM
"INTELLIGENT MANUFACTURING & AUTOMATION:
FOCUS ON MECHATRONICS AND ROBOTICS"
8-11TH NOVEMBER 2006, VIENNA, AUSTRIA

ORGANIZED BY:
DAAAM INTERNATIONAL VIENNA
VIENNA UNIVERSITY OF TECHNOLOGY
UNIVERSITY OF APPLIED SCIENCES TECHNIKUM, AND
AUSTRIAN SOCIETY OF ENGINEERS AND ARCHITECTS - ÖIAV 1848

UNDER THE AUSPICES OF:
THE DANUBE RECTORS' CONFERENCE &
RECTORS' HONOR COMMITTEE OF DAAAM INTERNATIONAL

EDITOR: B. KATALINIC

DAAAM INTERNATIONAL TABULA GRATULATORIA

Happy Birthday to:

Dr Adam Slota (35 Years) / Professor Bogomir Mursec (35 Years) / Hendrik Jähn (35 Years) / Professor Tobias Teich (40 Years) / Dr Marcin Andrzej Królikowski (40 Years) / Professor Bojan Acko (45 Years) / Professor Toma Udiljak (50 Years) / Professor Joze Balic (55 Years) / Professor Josip Brnic (55 Years) / Dr Tatjana Karaulova (55 Years) / Professor Karol Velišek (55 Years) / Professor Soemon Takakuwa (55 Years) / Professor Zvonko Dragcevic (60 Years) / Professor Kanji Ueda (60 Years) / Professor Bozo Vranjes (65 Years) / Professor Frantisek Hruska (65 Years) / Professor Emil Wessely (70 Years) / Professor Jaroslav Balate (75 Years) / Professor Rudolf Julius Beer (80 Years)

Jena University of Applied Sciences (15 Years) / Faculty of Material Sciences and Technology Trnava - Slovak Technical University Bratislava (20 Years), University of Maribor (30 Years) / Faculty of Mechanical Engineering, Tallinn University of Technology Tallinn Technical College (70 Years) / Technical Faculty University of Zagreb (80 Years)

Congratulations to:

Professor Dzemo Tufekcic - Election for Rector Magnificus University of Tuzla
Professor Jozef Gawlik - Election for Rector Magnificus Cracow University of Technology
Professor Csaba Gyenge - Doctor Honoris Causa of University of Miskolc

Welcome to the 3358th DAAAM Author:

During the last fiveteen years **3358** authors and co-authors published their scientific papers in the Annals & Proceedings of DAAAM International Symposium.

Special thanks for long time mobility support to
Central European Exchange Program for University Studies - CEEPUS
Secretary General Mag. Elisabeth Sorantin - Central CEEPUS Office
Dr. Lydia Skarits - National CEEPUS office Austria

With love and appreciations
World-wide DAAAM International Community

Who is in the field, and not in the DAAAM he/she does not exist.
(Jyri Papstel 1996)

EDITOR'S NOTE This publication was reproduced by the photo process, using the manuscripts and soft copies supplied by their authors. The layout, the figures and tables of some papers did not conform exactly with the standard requirements. In some cases was the layout of the manuscripts rebuild. All mistakes in manuscripts there could not been changed, nor could the English be checked completely. The readers are therefore asked to excuse any deficiencies in this publication which may have arisen from the above causes. The editor and the DAAAM International Vienna are not responsible either for the statements made or for the opinion expressed in this publication.

DAAAM International is a member of CrossRef. Contributions in DAAAM Scientific Book 2006 and DAAAM International Journal of Simulation Modelling will be crossreferenced and available on Internet. DAAAM International publications are cited and referenced in the: Inspec Database and Cambridge Scientific Abstracts

ANNALS OF DAAAM FOR 2006 & PROCEEDINGS OF THE 17TH INTERNATIONAL DAAAM SYMPOSIUM, VOL 17, NO1,
Abbreviated key title: Ann. DAAAM proc. int. DAAAM Symp.
ISSN 1726-9679, ISBN 3-901509-57-7, Editor B.[ranko] Katalinic
Published Annually by DAAAM International Vienna, Vienna 2006

Layout & Design: B.[ranko] Katalinic / Technical Editors: Lazinica A.[leksandar] Stuja F..[emajl] / DAAAM Home Page Administrator: Malisa V.[iktorio] / Cover graphics: Vienna University of Technology - Main Building / Graphics used in this Publication: M.C. Escher; T. Krauth and F.S. Meyer

Publisher: DAAAM International Vienna, TU Wien, Karlsplatz 13/311, A-1040 Vienna, Austria
E-mails: president@daaam.com katalinic@mail.ift.tuwien.ac.at / DAAAM homepage: http://www.daaam.com

THE SCIENTIST DESCRIBES WHAT IS: THE ENGINEER CREATES WHAT NEVER WAS

THEODOR VON KARMAN

"MEDAL OF DAAAM INTERNATIONAL VIENNA"

On the occasion of the 10th DAAAM International Symposium, Vienna 1999, Austria, Europe, the DAAAM International introduced the Medal of DAAAM International Vienna "for excellence in the science, technology, and international scientific co-operation in the framework of DAAAM International Vienna" as a highest recognition for accomplishments of individual persons and institutions. The medal is designed by B. Katalinic, produced by Moscow State Mint Institute and sponsored by Moscow State University of Technology "Stankin" and Cassandra Trust – Ireland.

"BEST PAPER AWARD OF DAAAM INTERNATIONAL VIENNA"

On the occasion of the 10th Anniversary (2000) the DAAAM International Vienna introduced the Best Paper Award of DAAAM International Vienna with the new defined motto of DAAAM International "Make Harmony between the Technology and Nature and your Mind will fly free as a Bird & The Price of Greatness is Responsibility". The authors of best papers at DAAAM 2000 Symposium in Opatija, Croatia get the Medal as first. The Medal was designed by DAAAM International Team 2000, and made by Heledi's d. o. o. Celje Slovenia.

Cover graphics: Vienna University of Technology

My Name:

Phone: *Fax:*

Email: *Home Page:*

Annals of DAAAM for 2006 & Proceedings of the 17th International DAAAM Symposium, ISSN 1726-9679
ISBN 3-901509-57-7, Editor B. Katalinic, Published by DAAAM International, Vienna, Austria 2006
150th Birthday of Nikola Tesla (1856-1943) Inventor of Mobile Robot Teleoperation

AN INTELLIGENT SYSTEM FOR MEASURING SOIL ELECTRICAL CONDUCTIVITY

OLTEANU, C.; ZAMFIRA, S.; OLTEAN, G. & OLTEANU, F.

Abstract: Romania's integration within the European Community structures imposes the alignment of the Romanian agriculture with the quality, economic efficiency and environment protection-oriented standards required in the developed countries. The reference parameters used in the European Union countries may be reached by increasing the resources monitoring and control upon all factors involved in the management of production agriculture system. In the paper we present the results obtained in the designing of the experimental model for soil conductivity measurement. The final result will be an integrated system able to measure, to acquire and to map the soil conductivity chart. This will give the opportunity to agriculture engineers to plan and obtain enhanced quality and quantity yields per hectares.
Key words: soil conductivity, agricultural mechatronics, terminal method, measuring.

1. INTRODUCTION

The Department of Fine Mechanics and Mechatronics from *Transilvania* University Library of Brasov in collaboration with the Research and Development Institute for Potatoes and Beetroots of Brasov - I.C.D.C.S.Z Brasov - has had intense preoccupations in the field of mechatronics applied in agriculture (Olteanu et al., 2004):

- computer-aided installation for measuring the starch and dry substance content in potatoes tubers;
- installation for automated dosage of chemical liquids used as fertilizers;
- research and experiment of a mobile laboratory and of the automated system of acquisition and processing of phytoclimate data in the potatoes growing.

The precision agriculture, which comprises the agriculture as an application of mechatronics, enhances a new methodology (that aims at a new agricultural system) that could be the key to many current problems (Oltean et al., 2005).

The opportunities that have favored the development of precision agriculture are (Oltean et al., 2004):

- capacity to understand the complexity of agricultural systems – systemic and holistic approach;
- capacity to monitor the phenomena and processes – computer-controlled data acquisition;
- achievements in computing techniques – hardware, software, fineware and data bases;
- improvement of interpretation and computing methods – statistics, modeling, simulation, decision support systems – DSS;
- development of geographic informational systems – GIS;
- occurrence and development of spatial analysis and statistics – Geostatistics;
- progresses of spatial technique – teledetection, GPS;
- technical achievements in automating and improving agricultural machines – agricultural mechatronics.

2. SYSTEM FOR MEASURING, ACQUIRING AND TRACING MAPS WITH REGARD TO SOIL ELECTRICAL CONDUCTIVITY

At the beginning of XX-th century Conrad Slumberger developed the plotting technique of geological sub-layers by inducing electric currents in the ground and by noting the distribution of the potential field resulted. Later on, the measurement of soil conductivity was applied in many areas of research: determining the rocks lithology, plotting the aggregates and clay deposits, plotting the subterranean water, locating the geo-thermal areas, plotting the archeological sites.
The conductivity is a measurement of a material's ability to transmit an electric charge. It stands for an intrinsic property of the material, similar to other properties such as density and porosity. The usefulness of soil conductivity stems from the fact that sands have low conductivity, silts have medium conductivity and clays have high conductivity.
Soil electrical conductivity (EC) is a property of soil that is determined by standardized measures of soil conductance (resistance^{-1}) by the distance and cross sectional area through which a current flows.
The movement of electrons through bulk soil is complex. Electrons may travel through soil water in macropores, along the surfaces of soil minerals (i.e. exchangeable ions), and through alternating layers of particles and solution. Therefore, multiple factors contribute to soil EC variability, including factors that affect the amount and connectivity of soil water (e.g. bulk density, structure, water potential, precipitation, timing of measurement), soil aggregation (e.g. cementing agents such as clay and organic matter, soil structure), electrolytes in soil water (e.g. salinity, exchangeable ions, soil water content, soil temperature), and the conductivity of the mineral phase (e.g. types and quantity of minerals, degree of isomorphic substitution, exchangeable ions).The electrical conductivity is influenced by a series of soil properties:

Porosity – the greater the porosity, the greater the electrical conductivity (the clayey soils have greater porosity as compared to sandy soils);

Water content – the electrical conductivity gets greater as the soil gets more humid;

Salinity level - the electrical conductivity is strongly influenced by the solution concentration in electrolytes, being directly proportional with it;

Cations exchange capacity influences the soil electrical conductivity through its content in positive ions of Ca, Mg, Na, NH_4 or H, which are held especially in soils with increased clay humus and minerals level;

Societatea Română de Etnofarmacologie

Institutului Naţional de Cercetare-Dezvoltare
pentru Cartof şi Sfeclă de Zahăr

Al II-lea Simpozion de Etnofarmacologie
2006

Calitatea produselor biologic active şi tehnologii inovative de extracţie

VOLUM DE REZUMATE

BRAŞOV
30 iunie – 2 iulie 2006

CALITATE ŞI TRASABILITATE ÎN PRODUSELE PE BAZĂ DE PLANTE MEDICINALE

Gh. OLTEANU, Angela MĂRCULESCU
1 INCDCSZ Braşov
2 Universitatea "Lucian Blaga" Sibiu

Problema calităţii produselor în general şi a calităţii plantelor medicinale în special reprezintă o problemă de mare actualitate şi de maximă importanţă în contextul actual.

Plantele medicinale - aceste laboratoare vii de sinteză - trebuiesc îngrijite şi controlate pentru ca procesele de biosinteză să fie dirijate spre realizarea acelor substanţe biologic active de care industria farmaceutică, cosmetică sau alimentară au nevoie.

Nu este lipsit de importanţă în ce condiţii şi unde cresc şi se dezvoltă plantele medicinale şi cu atât mai mult este important ce şi cum recoltăm.

Conform normelor europene recunoaşterea calităţii produselor agricole şi alimentare este reglementată sub patru semne oficiale de calitate:

- Denumirea cu origine controlată (AOC)
- Eticheta agricolă sau eticheta regională
- Calitatea biologică "BIO"
- Certificatul de conformitate

Denumirea cu origine controlată (AOC) - acest mod de exprimare a calităţii produselor agricole poate deveni foarte reprezentativ şi pentru plantele medicinale cu atât mai mult cu cât ele reacţionează foarte sensibil la orice schimbare a condiţiilor de viaţă, ceea ce a generat de altfel prezenţa multor plante medicinale sub formă de taxoni chimici. Aceste schimbări îşi pun amprenta pe paleta de substanţe active din compoziţia plantei care poate fi sensibil modificată de factorii naturali şi umani specifici.. În acest context **originea şi trasabilitatea** pentru plantele medicinale pot fi factori importanţi în stabilirea calităţii lor.

În lucrare sunt prezentate aspecte legate de modul în care trebuie elaborat un dosar pentru un produs cu origine controlată, final extrapolată această metodă la cazul specific al plantelor medicinale.

SOIL FERTILITY AND THE FUTURE OF AGRICULTURE IN EUROPE

Cristian HERA
Cristian KLEPŞ
(Editors)

The Publishing House of the Romanian Academy

The Union of European Academies for Science Applied to Agriculture, Food and Nature (UEAA)

The Romanian Academy of Agricultural and Forestry Sciences (AAFS)

SOIL FERTILITY AND THE FUTURE OF AGRICULTURE IN EUROPE

Proceeding of the International Workshop associated to the 4th UEAA General Assembly Bucharest, 25–27 June 2006

Edited by:

Cristian HERA

Cristian KLEPŞ

The Publishing House of the Romanian Academy

Bucharest, 2006

THE PUBLISHING HOUSE OF THE ROMANIAN ACADEMY
Calea 13 Septembrie nr. 13, Sector 5,
050711, Bucureşti, România,
Tel. 4021-318 81 46, 4021-318 81 06
Fax: 4021-318 24 44
E-mail: edacad©ear.ro
Internet http://www.ear.ro

Descrierea CIP a Bibliotecii Naţionale a României

Soil fertility and the future of agriculture in Europe / ed.: Cristian Hera, Cristian Kleps. - Bucureşti : Editura Academiei Române, 2006
ISBN (10) 973-27-1469-7 ; ISBN (13) 978-973-27-1469-0

I. Hera, Cristian (ed.)
II. Kleps, Cristian (ed.)

63(4)

Editorial asistants: DOINA ARGEŞANU, MONICA STANCIU
Computer operator: MARIANA MOCANU
Cover: NICOLETA NEGRUŢ

Final proof: 25.11.2006.
Format: 16/70×100.
Proof in sheets: 16.
D.L.C. for large libraries: 39(498)63(498)
D.L.C. for small libraries: 39
63

Printed in Romania

FERTILIZATION IN POTATO CROP. USING THE SOIL ELECTRICAL CONDUCTIVITY MAPS IN IMPROVING OF POTATO CROP TECHNOLOGY PRECISION FARMING

OLTEAN M.I., IANOŞI Maria, CHIRU S.C., OLTEANU GH., DONESCU V.*

Key words: *chemical and physical resources in the soil; soil electrical conductivity; precision farming*

Abstract. Potato is one of the most intensive cultivated crops. The performances of potato crop are direct correlated with the technological inputs. From these, fertilization is represented a special place with impact in:

– yield quantity and quality;
– technological value of potato as row material for processing;
– diseases and enemies resistance capacity.

The requirements of fertilizers per tone obtained tubers and haulms quantity (0.3 t/ha) is for nitrogen 4.5 kg, phosphorus 1.8 kg, potash 7.8 kg, manganese 1.2 kg and 2.4 kg for calcium and microelements.

The methods for differential and doses calculation for fertilizers are based on agrochemical factors of the soil, physiological stage of the crops and technological factors. From these, electrical conductivity (EC) method presents many advantages – working with high speed, accuracy, good correlation with soil fertility.

INTRODUCTION

Potato is one of the most intensive cultivated crops, requiring great amounts of technological resources, at high costs and a negative impact on the environment. The improvement of cropping technologies imposes the promotion of some new methodologies. The scientific and technological achievements have encouraged the introduction of automation and IT technology within the farming techniques (Olteanu *et al.*, 2002).

* D.Sc., National Institute of Research and Development for Potato and Sugar Beet, Braşov, Romania, olgeo@potato.ro

UNIVERSITY OF ZENICA

FACULTY OF MECHANICAL ENGINEERING IN ZENICA (Bosnia and Herzegovina)

UPC UNIVERSITAT POLITÈCNICA DE CATALUNYA

E.T.S.E.I. de BARCELONA DEPARTAMENT D'ENGINYERIA MECÀNICA (Spain)

BAHÇEŞEHİR UNIVERSITY ISTANBUL

MÜHENDİSLİK FAKÜLTESİ (Turkey)

11th International Research/Expert Conference

TRENDS IN THE DEVELOPMENT OF MACHINERY AND ASSOCIATED TECHNOLOGY TMT 2007

PROCEEDINGS

Editors:

Dr. Sabahudin Ekinović

Dr. Senay Yalcin

Dr. Joan Vivancos Calvet

Hammamet, Tunisia 05-09 September, 2007.

Proceedings

11th International Research/Expert Conference
"Trends in the Development of Machinery and Associated Technology"
TMT 2007, Hammamet, Tunisia, 05-09 September, 2007.

EDITORS:
Dr. Sabahudin Ekinović
Dr. Senay Yalcin
Dr. Joan Vivancos Calvet

TECHNICAL ASSISTANCE (DTP):
M.Sc. Jašarević Sabahudin, B.Sc. Mech. Eng.

PUBLISHER:
Faculty of Mechanical Engineering in Zenica, Fakultetska 1, Zenica, B&H
Escola Tecnica Superior D'Enginyeria Industrial de Barcelona, Department d'Enginyeria Mechanica, Universitat Politecnica de Catalunya, Spain
Bahçeşehir University Istanbul, Mühendislik Fakültesi, Turkey

Printed by: GRAFORAD Zenica, Marjanovića put 62

ISSUE: 350 Copies

CIP – Katalogizacija u publikaciji
Nacionalna i univerzitetska biblioteka
Bosne i Hercegovine, Sarajevo

621:001.892](063)(082)

INTERNATIONAL Research/Expert Conference Trends in the Development of Machinery and Associated Technology TMT 2007 (11th ; 2007 ; Hammamet)
Trends in the development of machinery and Associated technology TMT 2007 : proceedings / 11th International Research/Expert Conference Trends in the Development of Machinery and Associated Technology TMT 2007, Hammamet, Tunisia, 05-09 September, 2007, editors Sabahudin Ekinovic, Senay Yalcin, Joan Vivancos Calvet. – Zenica : Faculty of Mechanical Engineering [etc.], 2007. - XXVIII, [62], 1555 str. : ilustr. ; 24 cm

Bibliografija uz sve reference

ISBN 978-9958-617-34-8
1. Ekinovic Sabahudin
COBISS.BH-ID 15903404

ORGANIZERS:

UNIVERSITY OF ZENICA

FACULTY OF MECHANICAL ENGINEERING IN ZENICA (Bosnia and Herzegovina)

UPC UNIVERSITAT POLITÈCNICA DE CATALUNYA

E.T.S.E.I. de BARCELONA DEPARTAMENT D'ENGINYERIA MECÀNICA (Spain)

BAHÇEŞEHİR UNIVERSITY ISTANBUL

MÜHENDİSLİK FAKÜLTESİ (Turkey)

Faculty of Mechanical Engineering in Zenica, University of Zenica, B&H
Bahçeşehir University Istanbul, Mühendislik Fakültesi, Turkey
Escola Tecnica Superior D'Enginyeria Industrial de Barcelona, Department d'Enginyeria Mechanica, Universitat Politecnica de Catalunya, Spain

UNDER THE AUSPICES OF:
Government of the Federation of Bosnia and Herzegovina

ORGANIZING COMMITTEE

Dr. Sabahudin Ekinović, President (B&H)
Dr. Senay Yalcin, Co-President (Turkey)
Dr. Joan Vivancos Calvet, Co - President (Spain)

M.Sc. Sabahudin Jašarević, Secretary (B&H)
Dr. Safet Brdarevic (B&H)
Dr. Slavko Dolinšek (Slovenia)
Dr. Darko Petković (B&H)
Dr. Janez Kopač (Slovenia)
Dr. Jože Duhovnik (Slovenia)
Edin Begović (B&H)

M.Sc Irene Buj Corral, Secretary (Spain)
Dr. Francesc Roure Fernández (Spain)
Dr. Hernán A.Gonzalez Rojas (Spain)
Dr. Carles Riba Romeva (Spain)
Dr. Tunc Bozbura (Turkey)
Dr. Levent Eren (Turkey)
M.Sc. Lluis Costa Herrero, (Spain)

11th International Research/Expert Conference
"Trends in the Development of Machinery and Associated Technology"
TMT 2007, Hammamet, Tunisia 05-09 September, 2007.

AGRITRONICS: AIDS FROM MECHATRONICS

Ciprian Olteanu
„TRANSILVANIA" University of Brasov
Grivitei, no. 54, Brasov
Romania

Sorin Zamfira
„TRANSILVANIA" University of Brasov
Garii nr.38, Brasov
Romania

Gheorghe Oltean
ICDCSZ – Brasov
Sarmisegetuza, no.12, Brasov
Romania

Felicia Olteanu
„TRANSILVANIA" University of Brasov
Grivitei, no. 54, Brasov
Romania

Catalina Turcu
„TRANSILVANIA" University of Brasov
Al. Vlahuta, no.12, Brasov
Romania

ABSTRACT

The precision agriculture, which comprises the agriculture as an application of mecha-tronics, enhances a new methodology (that aims at a new agricultural system) that could be the key to many current problems.

Precision agriculture components: teledetection and GPS, simulation models, support systems for decision and GIS, automatisation, robotised system, agricultural machines make possible to develop the Agricultural Mechatronics.

In the paper we present the opportunities that have favored the development of precision agriculture and the results obtained by the authors from the measurements of an important parameter of the soil: the conductivity. Dynamic measurements and GPS system, assure the simultaneous acquisition of the soil parameters. Specific data base can be obtained leading to high productivity and reduced chemical analysis cost.

Key words: *agritronics, soil conductivity measurements, maps on soil conductivity.*

1. INTRODUCTION

In these days the field of electronics continues to change and evolve rapidly. Electronics are increasingly being used to collect and process all types of data, transfer information, make decisions, and provide automation and control functions. Modern microcontrollers and semiconductor components offer many advantages and ease of use in designing custom measurement and control systems. The manual collection of field and laboratory data can be time- and labor-intensive. This constrains result in data often being collected at irregular or infrequent intervals. Automating the data-collection process can provide more information at regular and frequent intervals, and reduce labor requirements and costs. Advances in electronics and the availability and ease of use of electronic devices and components has made it easier and more affordable to automate many control and data-collection processes.

The Department of Fine Mechanics and Mechatronics from *Transilvania* University of Brasov in collaboration with the Research and Development Institute for Potatoes and Beetroots of Brasov - I.C.D.C.S.Z. Brasov - has had intense preoccupations in the field of mechatronics applied in agriculture [1]:

6th European Colloquium on Ethnopharmacology (ESE) & 20. Fachkonferenz Ethnomedizin (AGEM) Joint Meeting

Gefördert von der Fritz Thyssen Stiftung zu Köln

New Trends in Ethnobotany and Ethnopharmacology / Neue Perspektiven in Ethnobotanik und Ethnopharmakologie / L'ethnobotanique + l'ethnopharmacologie: de nouvelles perspectives

08 – 09 – 10 November 2007

GRASSI Museum für Völkerkunde zu Leipzig

Due to the optimal conditions of climate and soil, the chemical structures' content and variety of the Romanian sea-buckthorn is superior, compared to other geographical regions. The total carotene's content, expressed in β-carotene, is up to 0.35 g% compared to around 0.15 g% frequently quoted in the literature on the subject, and the C vitamin's content goes up to 0.4 g %. The sea-buckthorn fruit processing is done with the three proceedings also used in other countries: extraction with solvents, cold-pressed, and extraction with supercritical fluids. A vast range of products have been achieved on the basis of the lipo- or water-soluble extracts, with the entire or partially modified vegetal material. Among those, one can mention:
Nutrition Supplements (energizante, adaptogenes, hepatitis protectors): CoQ_{10} in sea-buckthorn's oil – cardio protector product // „Cătinofort" (Sea-buckthorn Strong) with full powder of the fruit // Sea-buckthorn Jus + Spirulin // „Hepastim", with fat removed powder of the fruit // Other products that use sea-buckthorn jus in association with extracts from other plants with complementary effect: Complet Antioxidant, Flavovit C, Reglacid.
Cosmetics The range Hofviodana with sea-buckthorn oil and CoQ_{10} // anti-wrinkle cream, cream for neck care // eye-outline gel, cleansing milk, body milk, beach gel // shampoo 5R and hair conditioner
Hygiene products // toilet soap with sea-buckthorn oil // Acneogel, Bucoprotect, Orisan, Pedisan, etc. (for the protection and the hygiene of the mouth, the feet, the ears and the nose.
All above-mentioned products are patented, a majority of which having been awarded at the Invention Fairs in Romania or abroad, being currently under production at SC HOFIGAL SA and having a good market estimation.

() Les jardins des plantes médicinales et aromatiques - de la tradition à l'agrotourisme modern

Mărculescu Angela *, ***, *Stanciu Mirela**, *Hanganu Daniela***, *Olteanu Gheorghe****, *Mărculescu Laura****, *Popa Emil*****

*L'Université « Lucian Blaga » Sibiu – Roumanie // **L'Université de Médecine et Pharmacie Cluj-Napoca - Roumanie // ***L'Association « Société Roumaine d'Ethnopharmacologie » Brasov Roumanie // ****L'Institut National de Recherche d' Equipements pour l'Agriculture et l'Industrie alimentaire

En conformité avec les traditions, autours des maisons, les paysans avaient des jardins des légumes et des fleures où les plantes médicinales et aromatiques étais présentes. Cette habitude a été partiellement abandonnée à la suite des tous les changements de l'époque moderne. Dans ce moment de grand développement de l'agrotourisme thématique, l'ethnopharmacologie et l'ethnobotanique, par leurs objectifs, ont la possibilité d'intégrer une nouvelle forme de valorisation et de conservation des espèces médicinales et aromatiques en organisant les jardins traditionnels d'antan dans les pensions agro-touristiques de la zone rurale. L'ethnopharmacologie, par ses spécialistes, peut réaliser des enquêtes de terrains sur les plantes médicinales de la flore spontanée dans les régions touristiques de la Roumanie et aussi peut établir les conditions d'introductions dans la culture (dans les jardins des pensions) les espèces les plus importants de point de vue aromatique, ornemental, condimentaire, ou phytopharmaceutique. Par ces jardins on arrive à la conservation et à la valorisation des ressources naturelles liées aux coutumes spécifiques locaux en concordance à l'architecture du paysage. Cet ouvrage présent une telle expérience à Sirnea - village touristique de la région des montagnes, qui dispose d'une flore spontanée très riche.

Les espèces médicinales les plus connues et les plus appréciées dans la médicine traditionnelle de la région - mais utilisées d'une maniere empirique - sont :

Gentiana asclepiadea, Symphytum officinalis, Hypericum perforatum, Alchemila vulgaris, Gentiana lutea, Centaurium umbelatum, Achilea millefolium, Arnica montana, Plantago lanceolata, Origanum vulgare, Thymus serpyllum, Rumex acetosa. Parmi les espèces cultivées dans les vieux jardins paysans de Sirnea, comme plantes ornementales, aromatiques ou thérapeutiques on peut citer les suivants: *Ocimum basilicum, Artemisia abrotanum, Mentha piperita, Thymus serpyllum, Chrysanthemum balsamita, Geranium machrorrizum, Calendula officinalis.* Par ce projet, nous désirons offrir un plaisir supplémentaire à ceux qui cherchent le paysage reposant et une alimentation écologique, ayant aussi la possibilité de connaître les espèces médicinales et aromatiques dans leur milieu naturel.

Etude ethnobotanique multisite et pluridisciplinaire de deux nouvelle « panacées himalayennes : *Rhodiola crenulata* (J. D. Hooker & Thomson) *H. Ohba*, et *Cordyceps sinensis* (Berk.) Sacc.

Aline Mercan*, Jean-Pierre Nicolas**, L. T. Chok Tsang***

*Centre de Recherche Culture, Santé Société - 13094 Aix en Provence ; Association « Jardins du monde Montagnes » - 73670 Entremont Le Vieux ; Société Française d'Ethnopharmacologie – 57000 Metz. // **Docteur Jean-Pierre Nicolas : Association « Jardins du monde » 29190 – Brasparts ; Société Française d'Ethnopharmacologie – 57000 Metz. // *** L. T. Chok Tsang : INALCO - Paris

La réalisation d'une enquête ethnobotanique dans la région du Kham (est du Tibet) a révélé l'émergence de deux nouvelles vedettes himalayennes d'une phytothérapie mondialisée. Présentées comme de modernes panacées, *Rhodiola crenulata* et *Cordyceps sinensis* traversent les sociétés et les cultures. Pour étudier ce phénomène complexe il a été choisi de recourir à une anthropologie multisite et à une approche transdisciplinaire prenant en compte le biologique, le social, le symbolique, l'économique et le politique. - *L'analyse* de la place de la rhodiole tibétaine et du cordyceps dans la taxonomie tibétaine ainsi que de l'évolution de leurs usages, révèle le mouvement de standardisation, de biomédicalisation et de globalisation de la médecine tibétaine. L'objectivation des circuits de distribution, avec leurs enjeux économiques, politiques et identitaires montre comment ces nouveaux marchés reconfigurent la société pastorale nomade. Ils expliquent aussi des enjeux géostratégiques liés à la ressource, quand la guérilla maoïste népalaise prend en priorité le contrôle des zones riches en cordyceps, ou quand le Bhoutan est contraint de revoir sa législation pour ne pas perdre de nécessaires devises. Il permet encore de s'interroger sur les aléas du développement durable.

Les représentations de la maladie et de l'efficacité thérapeutique dans les différentes sociétés traversées, mettent en jeu des processus de légitimation qui nécessitent d'étudier les pratiques de la recherche scientifique. Dans le cas des phytomédicaments on se heurte à des problèmes méthodologiques majeurs et à l'absence d'études cliniques d'efficacité fiables. Cette spécificité conduit à des extrapolations parfois vertigineuses entre données pharmacologiques ou de l'expérimentation animale et clinique humaine. On peut ainsi mettre en évidence les glissements nosologiques d'une médecine à l'autre s'appuyant sur une certaine façon de manipuler les résultats « scientifiques » et validant les indications de la biomédecine au détriment des indications tibétaines le plus souvent. Cela pose une nouvelle fois la question de l'évaluation des médecines traditionnelles. - *La légitimation* se base également largement sur des discours autour de la « tradition » réinterprétés à chaque étape en fonction des attentes de chacune des sociétés traversées. Il est ainsi possible de suivre le trajet tant géographique que symbolique de cette plante et de ce champignon devenant progressivement phytomédicaments, depuis le haut plateau tibétain jusqu'aux supermarchés occidentaux ou asiatiques, en