ACADEMIA DE ŞTIINȚE AGRICOLE ŞI SILVICE
" Gheorghe Ionescu Şişeşti "
INSTITUTUL NAȚIONAL DE CERCETARE - DEZVOLTARE PENTRU
CARTOF ŞI SFECLĂ DE ZAHĂR (I.N.C.D.C.S.Z. BRAŞOV)

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Nr. _____ / _____

Propun a se aproba

BIROUL RELAȚII INTERNAȚIONALE,

Dr. ing. Cristian KLEPŞ

Se aprobă

PREŞEDINTE,

Prof. dr. Gheorghe SIN

Vizat

DIRECTOR GENERAL,

Dr. ing. Sorin Claudian CHIRU

R A P O R T

privind participarea la Simpozionul Internațional de Agronomie şi Fiziologie, Nevshehir, Turcia

Participanți: dr. ing. Sorin Claudian CHIRU, dr. ing. Victor DONESCU, ing. Gheorghe OLTEANU, dr. ing. Nicoleta CHIRU, dr. ing. Daniela DONESCU, biol. Diana KARÁCSONYI, dr. ing. Luiza MIKE

1. OBIECTUL DEPLASĂRII:

Participarea la Simpozionul Internațional de Agronomie şi Fiziologie, ediția I a întâlnirii trianuale a secției de agro-fiziologie a EAPR (European Association for Potato Research).

2. ȚARA ŞI LOCALITATEA:

Nevshehir, Turcia.

3. PERIOADA ŞI DURATA DEPLASĂRII:

19.09.2010 - 25.09.2010, 7 zile, inclusiv transportul.

4. ACTIVITATEA ÎN TIMPUL DEPLASĂRII:

Activitatea în timpul deplasării a constat în participarea la lucrările Simpozionului şi la excursiile tematice – vizitarea fermei şi a câmpului de la Kaymakli/ Nevshehir, a depozitelor naturale pentru păstrarea cartofilor şi a companiei Doga Seed, câmpurile experimentale de la Nevshehir, institutul de cercetare pentru cartof de la Nigde.

I. Scopul deplasării

Scopul deplasării a fost participarea cu lucrări ştiinţifice (orale – 2 prezentări şi postere - 6) la Simpozionul Internaţional de Agronomie şi Fiziologie, organizat în Nevshehir, Turcia.

II. Desfăşurarea activităţilor zilnice

20.09.2010

- înregistrarea participanţilor şi ceremonia de deschidere
- participare la lucrările simpozionului (vezi Anexa 1, Listă lucrări în engleză din program)
- tematica zilei:
    - dezvoltării sistemelor de agricultură de precizie pentru cultura de cartof,
    - dezvoltarea unui model ecofiziologic pentru analiza dinamicii în creşterea plantei de cartof,
    - influenţa unor factori agronomici şi ecologici asupra producţiei şi calităţii cartofului produs în sisteme organice,
    - relaţia dintre temperatura solului şi necroza rădăcinilor la cartof,
    - concentraţia de glicoalcaloizi din tuberculi
    - evaluarea producţiei de tuberculi cu diferite soiuri de cartof, utilizând diferite programe de fertilizare, în funcţie de analizele de sol, în diferite locaţii din Turcia
    - aplicarea locală de fertilizatori pe bază de azot mineral în timpul diferitelor faze ale culturii de cartof
    - efectele aplicării de azot şi fosfor, în diferite doze, asupra calităţii cartofilor
    - influenţa produselor humice asupra sănătăţii solului şi producţiei de cartof
    - efectele vine killing asupra producţiei, calităţii şi păstrării soiurilor de cartof
    - efectele practicilor de cultură asupra performanţei creşterii cartofului pe soluri cleioase în condiţiile tropicale din nordul Sudanului

21.09.2010

- participare la lucrările simpozionului (vezi Anexa 2, Listă lucrări în engleză din program)

- tematica zilei:
    - noi rezultate ale unui program complex de ameliorare a cartofului pentru stres biotic şi abiotic
    - screening-ul clonelor CIP pentru toleranţă la secetă în cîmpiile Indo-Gangetice
    - evaluarea clonelor CIP pentru climatul cald din statul Gujarat
    - varietăţi de cartof rezistente la mană, în zonele joase din India
    - adaptarea la diferite cantităţi de micronutrienţi a clonelor CIP, la diferite medii din Asia Centrală
    - Performanţa varietăţii de cartof Konyu, cu masă mare de rădăcini, în condiţii de secetă
    - Răspunsul cartofilor la aplicarea în sol a insecticidelor, fungicidelor şi ierbicidelor
    - Cartarea buruienilor – un mod de reducere a dozelor de ierbicide
    - Efectul arăturii asupra caracteristicilor fizice ale solului şi producţia unor culturi selectate
    - Efectele datei de plantare asupra producţiei cartofului de sămânţă şi severitatea putregaiului umed (*Alternaria solani*)
    - Răspunsul plantării cartofului la începutul lui noiembrie referitor la mărimea şi la tratamentul seminţei cu dezinfectanţi, în condiţiile tropicale din nordul Sudanului
    - Determinarea indicatorilor de sustenabilitate ai producţiei de cartof
    - Enzime antioxidante activate de secetă
    - Evaluarea soiurilor de cartof asupra toleranţei la secetă, *in vitro* şi *in vivo*
    - Evaluarea dormanţei şi a comportamentului de încolţire a seminţei elită CIP şi clonelor, în diferite condiţii de stocare din Uzbekistan
    - Efectul temperaturii înalte din timpul stocării asupra vigurozităţii tuberculilor mamă
    - Influenţa concentraţiei de GA_3 şi vârsta tuberculului asupra trezirii din dormanţă şi controlul post recoltat
- Participare la sesiunea de postere (vezi Anexa 3, Lista postere în engleză din program)

22.09.2010

- Vizitarea zonei Capadochia

23.09.2010

- participare la lucrările simpozionului (vezi Anexa 4, Lista lucrări în engleză din program)

- tematica zilei:
    - limitări şi noi abordări în vederea îmbunătăţirii producţiei de cartof de sămânţă
    - efectul multiplicării în câmp a generaţiilor de cartof de sămânţă asupra calităţii, în Kenya
    - efectul categoriei de cartof asupra creşterii şi producţiei unor soiuri de cartof în zona Uckapili, o nouă microzonă pentru producţia cartofului de sămânţă din Turcia
    - microzonarea culturii de cartof de sămânţă utilizând elemente ale agriculturii de precizie
    - studiu asupra determinării potenţialului producţiei de mini tuberculi a diferitelor soiuri de cartof, în condiţii *in vivo*
    - efectual recoltării în diferite stadii asupra producţiei de mini tuberculi a unor varietăţi de cartof, în condiţii de seră
    - producerea cartofului de sămânţă pe medii de cultură alternative
    - multiplicarea rapidă a minituberculilor prin metoda hidroponică
    - analiza proprietăţilor cantitative şi calitative a seminţei de bază din seminţe adevărate de cartof (TPS)
    - seminţe adevărate de cartof pentru producţia comercială de cartof şi securitatea alimentelor în Nepal
    - creşterea şi performanţele de producţie ale seminţei de cartof de diferite dimensiuni, derivată din seminţe adevărate (TPS), în mediile contrastante din Turcia
- vizitarea companiei DOGA SEED – unităţile de producere a seminţei şi unităţile de stocare şi păstrare a cartofului

24.09.2010

(Vezi Anexa 5 din program)

- Vizitarea câmpului experimental de la Nevshehir
- Vizitarea câmpului de la Kaymakli/ Nevshehir
- Vizitarea Institutului de Cercetare pentru Cartof Nigde

III. Utilitatea participării la lucrările simpozionului

Participarea la lucrările simpozionului a fost deosebit de utilă datorită

1. Participarea deosebit de numeroasă (aproximativ 80 de participanţi)
2. Participare din numeroase ţări (USA, Cehia, Olanda, Germania, Japonia, Australia, Slovenia, India, Uzbekistan, Turcia, etc.)

3. nivelului şi calităţii lucrărilor prezentate, discuţiile cu specialişti din toată lumea, crearea de noi legături şi parteneriate
4. Schimbul de informaţii cu specialişti în domeniul agriculturii de precizie, din domeniul păstrării şi depozitării cartofului
5. Excursiile tematice organizate în cadrul simpozionului au creat posibilitatea de a observa condiţiile şi modul de lucru al fermierilor turci, modul de depozitare şi păstrare al cartofilor – condiţii care au permis extinderea şi îmbunătăţirea culturii cartofului în Turcia, dar şi exporturile masive către ţările occidentale
6. Discuţii privind participarea în comun la proiecte de cercetare

IV. Propuneri

1. Prezentarea rezultatelor Conferinţei la Consiliul de Administraţie şi la Consiliul Ştiinţific lărgit;
2. Elaborarea unui proiect comun cu ţările central şi est Europene pentru identificarea şi reabilitarea unor soiuri vechi locale valoroase calitativ şi din punct de vedere al rezistenţei la condiţii biotice şi abiotice;
3. Elaborarea şi promovarea unui proiect FP7 privind fenotipia plantelor de cartof şi atragerea de parteneri din zona central şi est europeană;
4. Identificarea unor teme de cercetare care au rezultat din prelegerile conferinţei ca fiind prioritate naţională şi internaţională

Braşov 27.09.2010

Întocmit:

dr. ing. Sorin Claudian CHIRU
dr. ing. Victor DONESCU
ing. Gheorghe OLTEANU
dr. ing. Nicoleta CHIRU
dr. ing. Daniela DONESCU
biol. Diana KARÁCSONYI
dr. ing. Luiza MIKE

Anexa 1

THE ORGANIZING COMMITTEE

Mehmet Emin Çalışkan	*Mustafa Kemal University, Hatay* (Chairman)
Funda Arslanoğlu	*Ondokuz Mayıs University, Samsun* (Secretary)
Halis Arıoğlu	*Cukurova University, Adana*
Sevgi Çalışkan	*Mustafa Kemal University, Hatay*
Güngör Yılmaz	*Gaziosmanpaşa University, Tokat*
Yasin Bedrettin Karan	*Gaziosmanpaşa University, Tokat*
Hüseyin Onaran	*Potato Research Institute, Niğde*
L. Abdullah Ünlenen	*Potato Research Institute, Niğde*
Murat Nam	*Potato Research Institute, Niğde*
Abdurrahman Cağlı	*Potato Research Institute, Niğde*
Gün Kırcalıoğlu	*Aegean Agricultural Research Institute, İzmir*
Erdoğan Öztürk	*Atatürk University, Erzurum*

THE SCIENTIFIC COMMITTEE

Halis Arıoğlu	*Cukurova University, TURKEY*
Mehmet Emin Çalışkan	*Mustafa Kemal University, TURKEY*
Sorin Chiru	*Research and Development Ins. for Potato and Sugarbeet, ROMANIA*
Jean-Pierre Goffart	*Centre wallon de Recherches Agronomiques - CRA-W, BELGIUM*
Thorsten Haase	*Universität Kassel, GERMANY*
Anton Haverkort	*Plant Research International, The NETHERLANDS*
Kazuto Iwama	*Hokkaido University, JAPAN*
Katrin Kotkas	*Estonian Research Institute of Agriculture, ESTONIA*
Paavo Kuisma	*Potato Research Institute, FINLAND*
Gheorghe Olteanu	*Research and Development Ins. for Potato and Sugarbeet, ROMANIA*
Paul Struik	*Wageningen University, The NETHERLANDS*
Paolo Ranalli	*Consiglio per la Ricerca e la sperimentazione in Agricoltura, ITALY*
Güngör Yılmaz	*Gaziosmanpaşa University, TURKEY*

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20 September 2010
MONDAY

SESSION II. PHYSIOLOGY
Chairman: Dr. Sorin CHIRU, Romania

14.00-14.20	***Frank Mulcahy***
	Developing usable precision agriculture systems for potato crops in Australia
14.20-14.40	***Muhammad Sohail Khan, P.C. Struik, P.E.L. van der Putten, X. Yin, H.J. van Eck, M. Malosetti, F.A. van Eeuwijk***
	An ecophysiological model approach to analyze canopy dynamics in potato (*Solanum tuberosum* L.)
14.40-15.00	***Krystyna Zarzyńska***
	Influence of some agronomical and environmental factors on tuber yield and quality of potato grown in organic production system
15.00-15.20	***Michael K. Thornton, W. Buhrig, N. Olsen***
	The relationship between soil temperature and sugar ends in potato
15.20-15.40	***Norbert U. Haase***
	Glycoalkaloid concentration in potato tubers related to storage and consumer offering
15.40-16.10	**COFFEE BREAK**

SESSION III. AGRONOMY
Chairman: Dr. Michael K. THORNTON, *USA*

16.00-16.20	***Noyan Kuşman***
	Evaluation of tuber yields of some potato cultivars grown under different fertilization programs depending on soil analysis in different locations in Turkey
16.20-16.40	***Pavel Kasal, J. Cepl***
	Local application of mineral nitrogen fertilizers during potato crop establishment
16.40-17.00	***Zühal Kavurmacı, K. Kara, E. Öztürk, T. Polat***
	The effects of nitrogen and phosphorus application at different doses on quality of potatoes (*Solanum tuberosum* L.)
17.00-17.20	***Mir-Mohammad Seyedbagheri***
	Influence of humic products on soil health and potato production
17.20-17.40	***Güngör Yılmaz, Y. Yanar, Y.B. Karan, H. Okur***
	Effects of vine killing on yield, quality and storage characteristics of potato (*Solanum tuberosum* L.) cultivars
17.40-18.00	***Abdlazim Mohammed Ali, Saifel Din M. El Amen and A. Rahman A. El Mahdi*** Effect of cultural practices on performance of potato grown on clay soils of the tropical conditions of Northern Sudan
18.00-18.30	**COFFEE BREAK**
18.30-19.30	**WELCOME COCTAIL (Lykia Lodge Kapadokya Hotel)**

Anexa 2

21 September 2010 TUESDAY	
SESSION II. PHYSIOLOGY **Chairman: Anton J. HAVERKORT, The Netherlands**	
08.00-08.20	***Zsolt Polgár, I. Wolf, Z. Vaszily, R.Tömösközi-Farkas, L. Gergely*** The newest results of a complex resistance breeding programme to biotic and abiotic stresses of potato
08.20-08.40	***Parveen Kumar, N Sharma, MS Kadian, C Carli, SK Pandey, M Bonierbale, SK Luthra, R Schafleitner, Jai Gopal, SV Singh, BP Singh, S Rawal and R. Kumar*** Screening of CIP clones for drought tolerance in Indo-Gangetic Plains
08.40-09.00	***SV Singh, MS Kadian, NH Patel, SK Luthra, C Carli, SK Pandey, D. Kumar, P Kumar, N Sharma, M Bonierbale, Jai Gopal, BP Singh*** Evaluation of CIP advanced clones for hot climate in Gujarat state
09.00-09.20	***V. Kumar, S.K. Luthra, M.S. Kadian, J. Landeo, J. Gopal, S.V. Singh, M. Bonierbale, S.K. Pandey*** Late blight resistant potato varieties for cereal based lowlands of India
09.20-09.40	***Carlo Carli, F Yuldashev, D Khalikov, MS Kadian, M Bonierbale*** Adaptation of micronutrient-dense advanced CIP-bred clones to different environments of Central Asia
09.40-10.00	***Kazuto Iwama, T. Deguchi, T. Naya, P. Wangchuk, A. Tago, Y. Miura, E. Itoh, M. Matsumoto*** Yield performance of potato cultivars with large root mass, "Konyu", under drought condition
10.00-10.30	**COFFEE BREAK**
SESSION III. AGRONOMY **Chairman: Peter DOLNIČAR, Slovenia**	
10.30-10.50	***Michael K. Thornton, J.S. Miller, P.J.S. Hutchinson, J.M. Alvarez*** Response of potatoes to soil applied insecticides, fungicides and herbicides
10.50-11.10	***Jaroslav Čepl, P. Kasal*** Weed mapping – a way to reduce herbicides doses
11.10-11.30	***Milan Čížek, P. Kasal, A. Svobodova*** Effect of tillage on soil physical characteristics and yield of selected cash crops
11.30-11.50	***Yusuf Yanar, Güngör Yılmaz, Y.B. Karan*** Effects of planting date on seed potato production and early blight (*Alternaria solani*) disease severity
11.50-12.10	***Abdelazim Mohammed Ali, A. Ahmad Abdalla*** Response of potato sown in early November to seed size and seed treatment with disinfectants in the tropical conditions of Northern Sudan
12.10-14.00	**LUNCH**

21 September 2010
TUESDAY

SESSION II. PHYSIOLOGY
Chairman: Prof.Dr. Jiwan PALTA, USA

14.00-14.20	***Anton J. Haverkort***
	Determination of sustainability indicators of potato production and their preferred level
14.20-14.40	***Dominika Boguszewska, M. Grudkowska, B. Zagdanska***
	Drought responsive antioxidant enzymes in potato (*Solanum tuberosum* L.)
14.40-15.00	***Davoud Hassanpanah***
	Evaluation of potato cultivars against water deficit stress under *in vitro* and *in vivo* conditions
15.00-15.20	***Carlo Carli, F. Yuldashev, D. Khalikov, M.S. Kadian***
	Assesment of dormancy and sprouting behavior of CIP elite and advanced clones under different storage conditions in Uzbekistan
15.20-15.40	***Krystyna Rykaczewska***
	The effect of high temperature during storage on the vigour of potato mother tubers
15.40-16.00	***Peter Dolničar, Victor Zadrgal***
	The influence of GA_3 concentration and tuber age on dormancy breaking at post-harvest control
16.00-16.30	**COFFEE BREAK**
16.30-18.30	**POSTER SESSION**
19.30-	**GALA DINNER AT A CAVE HOUSE**
	Turkish Night

Anexa 3

POSTER SESSION
(20-23 September 2010)

1	*Thorsten Haase, H. Schulz, E. Koelsch, J. Heß* Examining selected agronomic characteristics of potato cultivars and their relevance for organic farming conditions
2	*Sevgi Çalışkan, M.E. Çalışkan* Effects of different organic production systems on growth and yield of potato
3	*V. Donescu, S. Chiru, Gh. Olteanu, E. Sigmond, M. Hermeziu, D. Donescu, E.L. Asanache, V. Badea* Preliminary results concerning the ecological crop module in the frame of NRDIPSB Brasov, Romania
4	*F Longobardi, L Tedone, G Casiello, D Sacco, F DeCillis, G DeMastro, A Sacco* Geographical origin characterization of Italian potato based on analysis of stable isotopes and volatile compounds
5	*Josef Vacek, K. Hamouz, K. Hejtmankova, D. Simkova* Evaluation of specialty potato varieties growing in Czechia
6	*Y. Benal Yurtlu, E. Yeşiloğlu, F. Arslanoğlu* Physical properties of potato (*Solanum tuberosum* L.) tubers
7	*Gheorghe Olteanu, M. Buiuc, I. Puiu, C. Aldea* New aspects on climatic changes in central area of Romania
8	Gavrila Morar, Cristina-Maria Moldovan Influence of some ecological factors upon potato tuberization
9	*Demet Uygan, Hasan Boyacı* Water consumption and water-yield relationship in potato under Eskişehir conditions
10	*Erdoğan Öztürk, K. Kara, T. Polat, Z. Kavurmacı* The effect of nitrogenous fertilizer forms applied different times and amounts on the yield and yield components in potato
11	*Erdoğan Öztürk, K. Kara, T. Polat, Z. Kavurmacı* The effect of chemical fertilizers applied different times and amounts on the quality in potato
12	*Aurelia Diaconu, Gh. Olteanu, Maria Ianosi, Isabela Puiu, Marieta Ploae, Milica Dima* The possibility of potato varieties selection on resistance / tolerance to thermohidric stress
13	*Aurelia Diaconu, M. Ploaie, M. Dima, Gh. Olteanu, I. Puiu* Diurnal variation of physiological indices under the influence of thermohidric stresses to potato crop on sandy soils on south of Romania
14	*Halis Arıoğlu, C. Kurt, L. Güllüoğlu, B. Zaimoğlu, H. Onaran* The determination of yield performance of some potato varieties in Mediterranean climate conditions
15	*Funda Arslanoğlu, S. Aytaç, E.K. Öner, S. Uğur* Morphological characterization of the local potato (*Solanum tuberosum* L.) ecotypes collected from high altitude producing areas of Eastern Black Sea region in Turkey
16	*Funda Arslanoğlu, Fatih Öner* Non-destructive leaf area measurement in potato (*Solanum tuberosum* L.)
17	*Erdoğan Öztürk, K. Kara, T. Polat, Z. Kavurmacı* The effects of some applications on production of seed potato (*Solanum tuberosum*) under field and netted-greenhouse conditions
18	*Nicoleta Chiru, A. Nistor, D. Karacsonyi, D. Donescu, M. Ianosi, C.L. Badarau , D. Bodea, R.N. Chiru* *In-vitro* microtuber production from Romanian potato varieties
19	*Carmen Liliana Badarau, S.C. Chiru, N. Cojocaru, Maria Ianoşi, N. Chiru* Studies regarding the improvement of methods used for viruses identification in potato seed indexation

	Non-destructive leaf area measurement in potato (*Solanum tuberosum* L.)
17	*Erdoğan Öztürk, K. Kara, T. Polat, Z. Kavurmacı* The effects of some applications on production of seed potato (*Solanum tuberosum*) under field and netted-greenhouse conditions
18	*Nicoleta Chiru, A. Nistor, D. Karacsonyi, D. Donescu, M. Ianosi, C.L. Badarau , D. Bodea, R.N. Chiru* *In-vitro* microtuber production from Romanian potato varieties
19	*Carmen Liliana Badarau, S.C. Chiru, N. Cojocaru, Maria Ianoşi, N. Chiru* Studies regarding the improvement of methods used for viruses identification in potato seed indexation

Anexa 4

23 September 2010
THURSDAY

SESSION II. SEED PRODUCTION
Chairman: Prof.Dr. Paul STRUIK, The Netherlands

08.00-08.20	***Sorin Chiru, Gh. Olteanu, N. Chiru, S. Rusu***
	Limits and new approach in improving seed potato production in Romania
08.20-08.40	***Geoffrey Wachira, I. Barker, E. Schulte-Geldermann***
	Effect of field multiplication generation on seed potato (Solanum tuberosum) quality in Kenya
08.40-09.00	***Hüseyin Onaran, M.E. Çalışkan, M.G. Bilgin, A. Cağlı***
	The effects of seed category on growth and yield of some potato cultivars in Üçkapılı area, the new microzone for seed potato production in Turkey
09.00-09.20	***Gheorghe Olteanu, C. Aldea, I. Şandric, S. Chiru, Isabela Puiu***
	Seed potato crop microzoning using elements of precision farming
09.20-09.40	***Davoud Hassanpanah , Jafar Azimi***
	A study on determination of mini tuber production potential of different potato cultivars in repeated and conventional harvesting under *in vivo* condition
09.40-10.00	***Mahdiye Khanbabazadeh, M.B. Khorshidy, D. Hassanpanah, S.H. Azizi***
	The effect of multi harvest at different stages on mini tuber production of some potato cultivars under greenhouse condition
10.00-10.30	**COFFEE BREAK**

SESSION III. SEED TECHNOLOGY
Chairman: Dr. Parveen KUMAR, India

10.30-10.50	***Cennet Yaman, Mustafa Yorgancılar***
	Investigation of seed potato production in alternative tissue culture media
10.50-11.10	***Krystyna Rykaczewska***
	Rapid multiplication of potato minitubers using hydroponics
11.10-11.30	***Ali Nazirzadeh, D. Hassanpanah, M. Yıldız, C. Er***
	Analysis of quantitative and qualitative properties of base seeds from True Potato Seeds (TPS)
11.30-11.50	***Ram Chandra Adhikari***
	True Potato Seed for Commercial Potato Production and Food Security in Nepal
11.50-12.10	***Ram Chandra Adhikari***
	Evaluation of hybrid true potato seed families in Nepal
12.10-12.30	***Mehmet Emin Çalışkan, Noyan Kuşman, Sevgi Çalışkan***
	Growth and yield performance of different sized seed tubers derived from true potato seed (TPS) in contrasting environments in Turkey

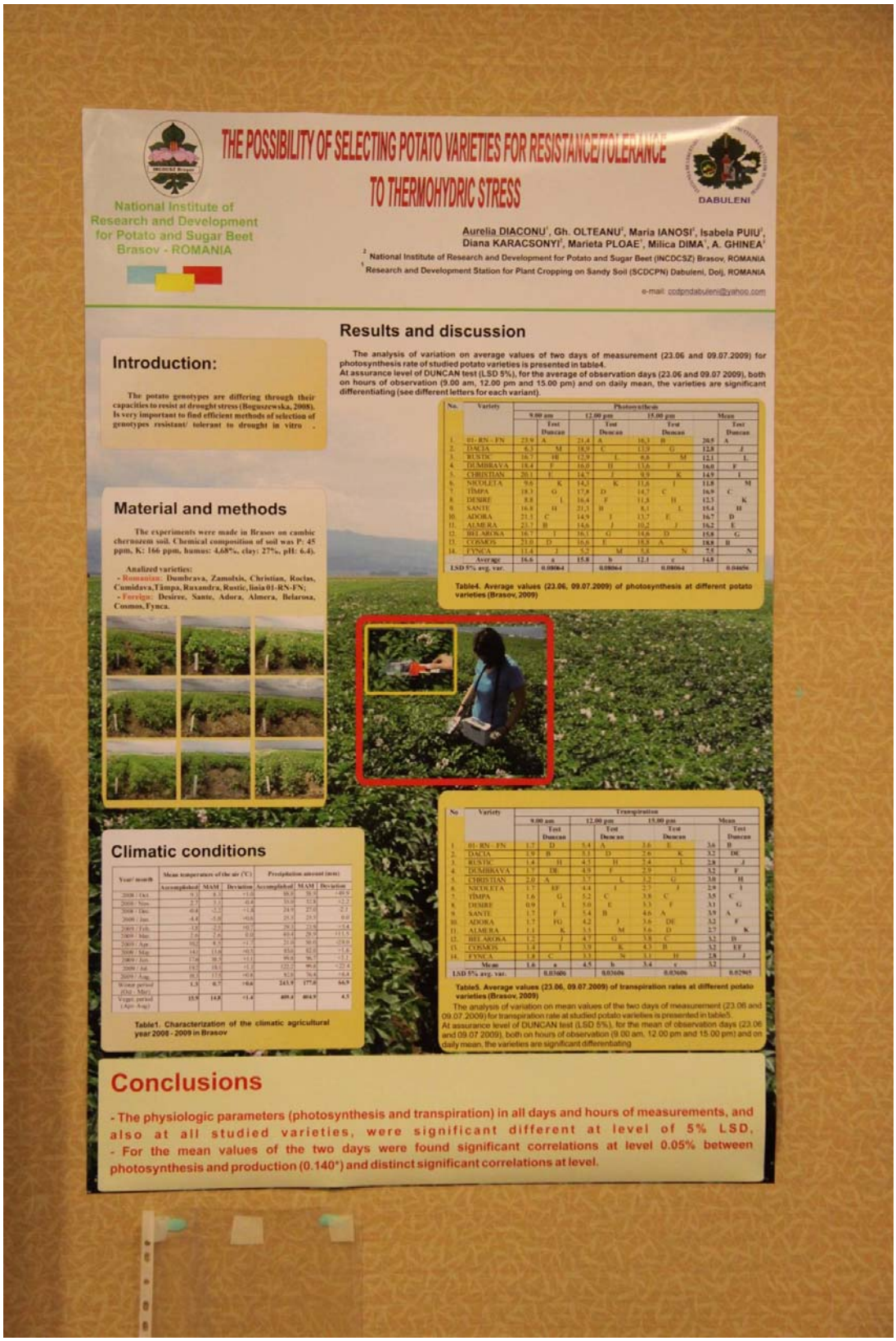
12.10-14.00	**LUNCH**

23 September 2010 THURSDAY	
14.00-15.00	EAPR AGRONOMY&PHYSIOLGY SECTION MEETING (Moderator Dr. Norbert HAASE, Germany)
15.00-15.30	CLOSING CEROMONY
16.00-18.00	VISITING DOGA SEED COMPANY (Cave Stores and Seed Production Units)
18.00-	BARBEQUE PARTY AT THE GARDEN OF DOGA SEED

Anexa 5

24 September 2010 FRIDAY	
08.00-19.00	EXCURSION -Visiting experimental field at Nevşehir, -Visiting farmer field at Kaymaklı/Nevşehir, -Visiting underground city at Kaymaklı/Nevşehir, -Lunch at Kaymaklı/Nevşehir, -Visiting Niğde Potato Research Institute, -Visiting Gümüşler Monastery in Niğde,

POSTER PREZENTATE



DIURNAL VARIATION OF PHYSIOLOGICAL INDICES UNDER THE INFLUENCE OF THERMOHYDRIC STRESSES TO POTATOES CROP ON SANDY SOILS IN SOUTH OF ROMANIA

National Institute of Research and Development for Potato and Sugar Beet Brasov - ROMANIA

DABULENI

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Key words: Potato crop, thermohydric stress, photosynthsis rate, transpiration rate.

Abstract. Plant suffering by thermohydric stress is an indicator on resistance of range varieties of crops. The importance of knowledge of this indicator increased lately by climatic changes occurred in Romania.
This paper present research on sandy soil in south Romania on varieties of potato Tampa(Dacia and Luiza cultivated in different irrigation scheme with 80% and 50% from Range of available soil moisture content (or Active Humidity Range - AHR).
The determinations were performed in dynamic, between 2 hours from 8 a.m to 16 p.m. During the vegetation period was registered photosynthesis rate, transpiration rate, photosynthetic active radiation and temperature.
Varieties of potato have reacted different at the action of stressful factors who influenced physiological indices and tubers crop which was between 29.2-36.0 t/ha at the 80% from AHR irrigated plants compare with 50% AHR irrigated plants were the crop was between 20.8-23.3 t/ha.

Introduction:

Climate changes lately imposed increased research influence of stress conditions on physiological indices (photosynthesis,respiration and transpiration) related to plant growth and especially the accumulation of production

Material and methods:

The paper present research on sandy soil in south Romania (Dabuleni, Dolj) on roumanian varieties of potato Tampa (medium late), Dacia (medium early) and Luiza (medium late) cultivated in different irrigation scheme (50% and 80% AHR). The determinations were performed in dynamic, between 2 hours from 8 am to 16 pm. During the vegetation period was registered photosynthesis rate, transpiration rate, photosynthetic active radiation and temperature.
Measurements were made with LCI Portable Photosynthesis System (ADC BioScientific Ltd.).

In table 1 can se maximum of photosynthetic active radiation (PAR) was obtain at 12.00 pm (1663 µmol m-2 s-1) while air temperature increased continuously throughout the hours of observations

Name/hour	8 am	10 am	12 am	14 am	16 am
PAR (µmol m⁻² s⁻¹)	1563	1436	1663	1607	1573
Air Temp. (°C)	24.0	31.0	34.5	36.3	37.5

Table 1. Diurnal variation of photosynthetic active radiation and air temperature

Results

In table 2 can see how the physiological indices studied showed a diurnal variation under the influence of specific climatic factors sands area.

AHR (%)	Varieties	8 am	10 am	12 pm	14 pm	16 pm
80	Tampa	18.10	18.10	18.10	12.13	5.68
	Dacia	11.80	20.50	11.80	17.47	13.50
	Luiza	9.20	17.80	9.20	13.31	9.98
Average		13.03	16.70	13.03	14.30	9.72
50	Tampa	13.11	18.80	16.02	17.40	9.50
	Dacia	13.27	16.32	15.06	15.40	14.40
	Luiza	14.12	15.03	17.16	10.40	5.30
Average		13.50	16.51	16.08	14.40	9.73

Table 2. Diurnal variation of photosynthetic rate (µmoli CO2 m-2 s-1) of potato grown on sandy soil watering at 80% and 50% AHR

In table 3 can see how the foliar transpiration was influence by air temperature, irrigation regime and variety studied.

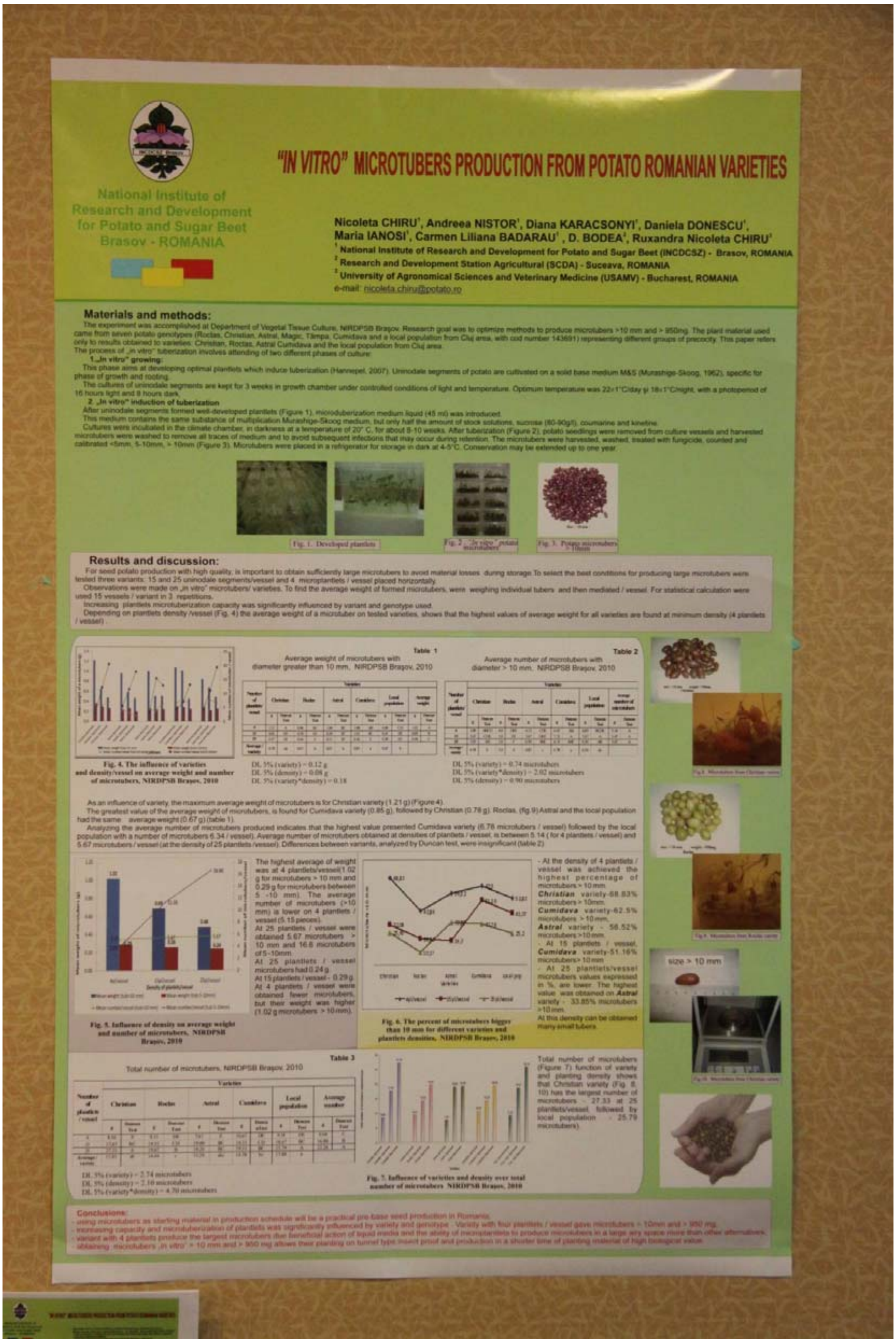
AHR (%)	Varieties	8 am	10 am	12 pm	14 pm	16 pm
80	Tampa	2.99	3.39	3.15	3.53	3.35
	Dacia	1.95	4.42	5.63	5.25	4.40
	Luiza	1.60	4.25	6.54	4.75	2.22
Average		2.18	4.02	5.11	4.51	3.32
50	Tampa	3.15	3.97	4.92	5.40	6.15
	Dacia	1.98	4.58	6.53	5.18	6.06
	Luiza	2.73	4.45	6.16	4.83	2.83
Average		2.62	4.33	5.87	5.14	5.01

Table 3. Diurnal variation of transpiration rate (µmoli H2O m-2 s-1) at potatoes grown on sand watering at 80% and 50% AHR

In table 4 can see that higher production is obtained at the 80% from AHR water supply where photosynthesis rates, stomatic maximum values and minimum values of transpiration rate.

AHR (%)	Photosynthetic rate (µmoli CO2 m-2 s-1)	Transpiration rate (µmoli H2O m-2 s-1)	Production (t/ha)
80	18.80	5.11	32.60
50	16.51	5.87	22.05

Table 4. Comparing yields on sandy soil made from potatoes grown watering at 80% and 50% from AHR in correlation with physiological parameters


"IN VITRO" MICROTUBERS PRODUCTION FROM POTATO ROMANIAN VARIETIES
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Materials and methods:
Results and discussion:

STUDIES REGARDING THE IMPROVEMENT OF METHODS USED FOR VIRUSES IDENTIFICATION IN POTATO SEED INDEXATION

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Introduction:

ELISA test is the most commonly assay for detection of virus particles in potato tissues. A lot of researches were targeted to make modifications of this assay, their purpose being to increase its performances or to enhance its detection. Composition of buffers used in ELISA test is an important parameter that could influence the detection of potato viruses

Materials and method:

The analysis was performed following essentially the protocol described by Clark and Adams (1977). We used 100 ml from each reactive solutions. All experiments were repeated five times. Rinsed microplates were filled with substrate solution (p-nitrophenylphosphate) incubated 60 minute and the absorbance values were estimated on PR1100 reader. The samples having A 405nm values exceeding the cut-off (two times the average of healthy control samples) were considered virus infected. We used fresh tissues that produced relatively medium ELISA reactions (aap from 2infected+2health plants) In case of the viruses detection in freeze leaves, only for PVY, the samples (virus source plant) were selected to produce relatively strong, moderate or weak virus specific reactions in ELISA. Extraction buffers used: classic buffer, Mc Ilvain buffer phosphate-citric acid (0,18M; pH 7), sodium diethyldithiocarbamate (0,01M) in phosphate-buffered saline plus Tween 20 (PBST) sodiumthioglicolat(0,01M) and sodiumdiethyldithiocarbamate (0,01M) in PBS-T.

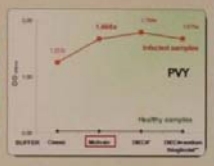
RESULTS

The virus absorbance (A405nm) of enzyme–linked immunosorbent assay (ELISA) for potato leafroll virus, potato viruses Y and A could be increased using extraction buffers with new composition. Using McIlvain's buffer, the absorbances increased significantly for PVY. PVA and PLRV detection comparing with the classic extraction buffer Sodium diethyldithiocarbamate (0,01M) in phosphate-buffered saline plus Tween 20 (PBS-T) used instead of the polyvinylpyrrolidone increased the sensitivity of potato virus Y but this additives decrease the absorbances values in case of PLRV identification. The same decrease was observed when we used sodium thioglicolat (0,01M) and sodium diethyldithiocarbamate (0,01M) in PBS-T.

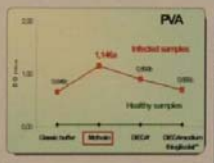
ABSORBANCES VALUES (mean values of OD_{405nm} for 5 repetitions) FONCTION ON EXTRACTION BUFFER COMPOSITION

Samples used: fresh tissues that produced relatively medium ELISA reactions (aap from 2infected+2health plants)

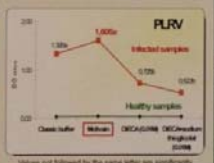
POTATO VIRUS Y



POTATO VIRUS A

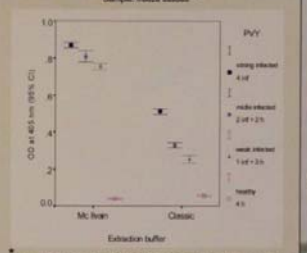


POTATO LEAFROLL VIRUS



Values not followed by the same letter are significantly different (P<0,05) according to Duncan's test

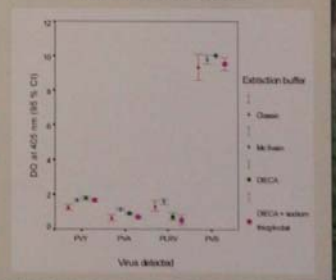
INFLUENCE OF McILVAIN BUFFER ON POTATO VIRUS Y DETECTION
Sample: freeze tissues *



* Virus source plant were selected to produce relatively strong, moderate or weak virus specific reactions in ELISA.
95%CI- 95% confidence interval of the difference

The McIlvain's buffer improves the detection for PVY even in freeze potato leaves. The results show a better identification (significant differences) using McIlvain's phosphate-citric acid buffer, comparatively to the classic variant, for all infection levels. Using this buffer, the test was more sensitive that the standard test, it detects low concentration of virus with greater reliability even for the weak infection level of sample.

DETECTION OF POTATO LEAFROLL VIRUS, POTATO VIRUSES Y, A, S FONCTION ON EXTRACTION BUFFER COMPOSITION
95%CI- 95% confidence interval of the difference



DETECTION OF PVS AND PVX FONCTION OF BUFFER COMPOSITION

ABSORBANCES VALUES (mean values of OD at 405nm for 5 repetitions ±SD values)

POTATO VIRUS S (PVS)

Sample	Extraction buffer			
	Classic buffer	McIlvain	DECA (0.01M)	DECA+sodium thioglicolat (0.01M)
Infected	>2,000	>2,000	>2,000	>2,000
Healthy	0,045±0,011	0,048±0,012	0,044±0,014	0,047±0,012
Buffer	0,030±0,009	0,029±0,011	0,031±0,009	0,029±0,008

POTATO VIRUS X (PVX)

Sample	Extraction buffer			
	Classic buffer	McIlvain	DECA (0.01M)	DECA+sodium thioglicolat (0.01M)
Infected	>2,000	>2,000	>2,000	>2,000
Healthy	0,032±0,009	0,035±0,012	0,033±0,008	0,032±0,010
Buffer	0,028±0,007	0,026±0,009	0,024±0,010	0,024±0,008

The detection of potato viruses X and S were not significant influenced by the new additives.

Conclusions:

The results show a better identification (significant differences) for PVY, PVA, PLRV in potato leaves using McIlvain's phosphate-citric acid buffer (0,18M; pH 7). This buffer could save costs of seed indexation (it is without polyvinylpyrrolidone, an additive expensive, difficult to dissolve in PBS-T).

The influence of some ecological factors upon potato tuberization

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Introduction

For Romanian geographical location, astronomical calculations indicate short days, under 14 ore only in March and potato tuberisation generally, takes place over 15 hours of light, between 15 and 25 May,
periods do not correspond with the days short tuberisation (12-14 hours) in Northern Europe countries: Netherlands, Denmark, England
The time of potato tuberization in Romania generally spans between 15th - 25th of May when the length of the daylight exceeds 15 hours, which justifies the lesser effect upon tuberization and the varieties used in our country mostly belong to the semi-early and semi-late groups for which tuberization is in days of medium or medium-long duration. Generally in the case of seeding in the conditions of a normal spring, between the 1st and 20th of April, tuberization takes place in the end of May when the duration of daylight exceeds 15 hours.

Research method

The research was carried out in three ecologically different locations,
at an early time in greenhouse conditions (tuberization in short days)
in delayed seeding conditions (tuberization in long days) in experimental field,
and in conditions of long to short days with more light, in the Apuseni Mountains,
on the Călineasa Plateau at an altitude of 1150 m, in the vicinity of the village Gheţari;
the research has been focussed on the influence of photoperiod upon tuberization
and the effect of photoperiod on the potato varieties.
Two early varieties (Ostara and Impala) and two semi-late varieties
(Redsec and Laura) were used, out of which some develop few but big tubers
(Ostara and Laura) and two others grow numerous tubers of smaller size (Impala and Redsec).

Results and discussions

Photoperiod, represented by the number of hours of light influences neither the total number of stolons nor that of the tubers formed 25 days after sprouting, as an average for all varieties (Table 1). 45 days after emergence one notices a considerable influence of long days on the total number of stolons developed and a clear effect of the length of day upon tuberization (5-10 mm tubers) (Table 2). It seems that the influence of light duration upon tuberization is conveyed after a period of approx. 2-3 weeks, when one may notice a considerably different number of tubers formed. In the conditions of our experiment, tuberization took place in green house conditions during short days, in the field in long day conditions (about the summer solstice), and in mountain conditions immediately after the summer solstice.
The differences between one stages to another are significantly negative.
The total number of tubers formed as an average of the experimented varieties during three years clearly shows the differences between the three periods of tuberization in the three locations (Table 2).

Table 1
The influence of the length of the day on the numbers of stolons and on the number of tubers 25 days after sprouting

Location	No. of hours of light 25 days after sprouting	No. of stolons			No. of tubers (5-10 mm)		
		No.	Signif	Duncan Test	No.	Signif	Duncan Test
Plastic greenhouse (tuberization in short days)	14,23-14,50	19,00	Mt.	A	5,44	Mt.	A
Field (tuberization in long days)	15,45-15,51	18,04	-0,96	A	4,56	0,88	A
Mountain (tuberization in long to short days)	15,54-15,59	18,03	-0,97	A	5,17	-0,86	A
LSD (5%)			1,58			2,53	
LSD (1%)			3,06			3,93	
LSD (0,1%)			4,90			5,98	

Table 2
The influence of the length of the day on the number of stolons and on the number of tubers 45 days after sprouting

Location	No. of stolons			Total no. of tubers (5-10 mm)		
	No.	Signif	Duncan Test	No.	Signif	Duncan Test
Plastic greenhouse (tuberization in short days)	19,00	Mt.	A	5,44	Mt.	A
Field (tuberization in long days)	18,04	-0,96	A	4,56	0,88	A
Mountain (tuberization in long to short days)	18,03	-0,97	A	5,17	-0,86	A
LSD (5%)		1,58			2,53	
LSD (1%)		3,06			3,93	
LSD (0,1%)		4,90			5,98	

Table 3
The number of stolons and tubers 25 days after sprouting in the interaction variety x location

Variety	Location	No. of stolons			Total no. of tubers		
		No.	Signif	Duncan Test	No.	Signif	Duncan Test
Ostara	Greenhouse	15,75	Mt.	B	14,48	Mt.	BCD
	Field	13,63	-2,12*	A	11,75	-2,73	AB
	Mountain	14,62	-1,14	B	8,90	-5,58**	A
Impala	Greenhouse	22,08	Mt.	D	18,16	Mt.	D
	Field	21,10	-0,98	D	17,53	-0,62	D
	Mountain	17,55	-4,53**	C	11,93	-6,22**	AB
Redsec	Greenhouse	20,22	Mt.	D	16,70	Mt.	CD
	Field	18,78	-1,44	D	14,63	-2,07	BCD
	Mountain	15,68	-4,54**	C	13,08	-3,62*	BC
Laura	Greenhouse	19,67	Mt.	D	17,58	Mt.	D
	Field	20,17	0,19	D	16,57	-1,01	CD
	Mountain	13,08	-6,59**	C	11,79	-5,79**	AB
LSD (5%)			1,97			3,20	
LSD (1%)			3,00			4,45	
LSD (0,1%)			4,98			6,23	

Table 4
The number of stolons and tubers 45 days after sprouting in the interaction variety x location

Variety	Location	No. of stolons			Total no. of tubers		
		No.	Signif	Duncan Test	No.	Signif	Duncan Test
Ostara	Greenhouse	17,78	Mt.	ABC	14,48	Mt.	BCD
	Field	16,75	-1,03	AB	11,75	-2,73	AB
	Mountain	15,67	-2,11	A	8,90	-5,58**	A
Impala	Greenhouse	22,89	Mt.	EF	18,16	Mt.	D
	Field	23,06	0,17	EF	17,53	-0,62	D
	Mountain	18,89	-4,00**	BC	11,93	-6,22**	AB
Redsec	Greenhouse	18,72	Mt.	BC	16,70	Mt.	CD
	Field	26,75	8,03**	G	14,63	-2,07	BCD
	Mountain	19,92	1,19	CD	13,08	-3,62*	BC
Laura	Greenhouse	19,67	Mt.	CD	17,58	Mt.	D
	Field	25,00	5,33*	FG	16,57	-1,01	CD
	Mountain	21,92	2,25	DE	11,79	-5,79**	AB
LSD (5%)			3,52			3,20	
LSD (1%)			5,34			4,45	
LSD (0,1%)			8,80			6,23	

Conclusions

1. Generally the number of stolons is less influenced by the photoperiod but it seems that for early varieties the number of stolons formed in the long days decrease.
2. The number of formed tubers is always smaller than that of stolons and it is generally directly influenced by day length.
3. Short days favour tuberization mostly at early varieties.
4. The influence of photoperiod upon tuberization is transmitted as an effect 15-20 days after the impact of light upon the plant.

PRELIMINARY RESULTS CONCERNING THE ECOLOGICAL CROP MODULE IN THE FRAME OF NRDIPSB BRASOV, ROMANIA

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Principles of ecological agriculture:
- achievement of agricultural products with high nutritional qualities, without residues, with low level of pesticides and nitrates
- improvement of soils fertility
- removing all forms of soil, air and water pollution

Objectives:

Achievement of an experimental model on farm level to get vegetal products eco certified.
Achievement of eco seed potato, phacelia and maize.
Promotion of an educational program for farmers concerning eco agriculture

MODULE LOCATION AND CONVERSION:

The module is located on 24 ha, cultivated for 24 years with perennial grasses (hay field) on which, no chemical fertilizers or pesticide treatments were made.
On the first year was realized ecological conversion of the hole surface.
On the second year the surface was ecological certified and production was turn to account as eco production.
Checking and eco-certification was done by ECOINSPECT firm from Cluj-Napoca.

The structure and crop rotation
Eco module – 24 ha

2007		2008		2009		2010		2011	
Crop	ha	Crop	ha	Crop	ha	Crop	ha	Crop	ha
perennial grasses	1	potato	1	triticale	1	maize	1	phacelia	1
perennial grasses	1	phacelia	1	triticale	1	maize	1	potato	1
perennial grasses	4	maize	4	potato	4	Tri ticale	4	fodder beet	4
perennial grasses	4	alfalfa first year	4	alfalfa second year	4	alfalfa third year	4	maize	4
perennial grasses	1	perennial grasses	1	phacelia	1	potato	1	triticale	1
perennial grasses	3	perennial grasses	3	maize	3	potato	3	triticale	3
perennial grasses	1	perennial grasses	1	maize	1	phacelia	1	potato	1
perennial grasses	4	perennial grasses	4	perennial grasses	4	alfalfa first year	4	alfalfa second year	4
perennial grasses	2	perennial grasses	2	perennial grasses	2	maize	2	potato	2
perennial grasses	3	perennial grasses	3	perennial grasses	3	perennial grasses	3	maize	3
Total	24	x	24	x	24	x	24	x	24

Manual control of Colorado beetle

Eco-crops obtained in period 2008 - 2010

Crop	2008		2009		2010	
	Surface	Yield / ha	Surface	Yield / ha	Surface	Yield / ha
Potato	1	36,200	4	25,500	4	-
Phacelia	1	-	1	280	1	350
Triticale	-	-	2	2,100	4	870
Maize	4	4,500	4	4,750	4	-
Alfalfa	4	2,250	4	2,800	8	-
Perennial grasses	14	1,271	9	1,420	3	-
Total	24	x	24	x	24	x

Mechanical control of Colorado beetle

Rustic is a Romanian potato variety, created in our institute and represents the promotion solution on large scale (production) to a viable technological package (variety, high quality seed, specific technology) for ecological potato crop.

Galerie Foto-01

Conferință. Expoziție.


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Birde Tarım
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Sorin CHIRU
Chairman


msi


TOROS
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Rapid Production Of Early Generation Seed Potatoes
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HERMES


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Our varieties, to suit any taste:
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EVEREST
MELODY
MUSICA
RAMOS
SOPRANO
INOVA
LANORMA
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LADY OLYMPIA
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OPAL
CARUSO


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Vizită câmp, Institut Cartof, Depozit


RH 1840


DOĞA


FIRST
CLONAL
GENERATION


Milli Ekonominin
Temeli ZiRAATTiR
T.C.
TARIM ve KÖYİŞLERİ BAKANLIĞI
PATATES ARAŞTIRMA ENSTİTÜSÜ
MÜDÜRLÜĞÜ
41


Milli Ekonominin
Temeli ZİRAATTİR
T.C.
TARIM ve KÖYİŞLERİ BAKANLIĞI
PATATES ARAŞTIRMA ENSTİTÜSÜ
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Imagini turistice