

MINUTES OF THE COMMITTEE ON HIGHER EDUCATION.

The joint meeting with the House Committee on Agriculture was called to order by Chairperson Tom Sloan at 3:30 p.m. on March 17, 2003 in Room 519-S of the Capitol.

All members were present except: Representative Gordon, Excused
Representative Hill, Absent
Representative Kuether, Absent

Committee staff present: Paul West, Legislative Research
Mona Gambone, Committee Secretary

Conferees appearing before the committee: Dr. Ed Martinko, State Biologist and Director, Kansas
Biological Survey
Dr. William Duncan, President, Kansas City Life Sciences
Institute

Others attending: See attached list

Chairman Sloan introduced Dr. Ed Martinko (Attachment #1). Dr Martinko then responded to questions from members of the Committee.

The members of the Committee on Agriculture then excused themselves to go to their own Committee meeting.

Chairman Sloan then introduced Dr. Bill Duncan (Attachment #2). Dr. Duncan then responded to questions from the members of the Committee.

There being no other business, the meeting was adjourned.

The next meeting is scheduled for March 19 in Room 231-N.

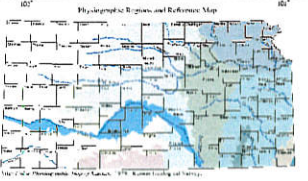
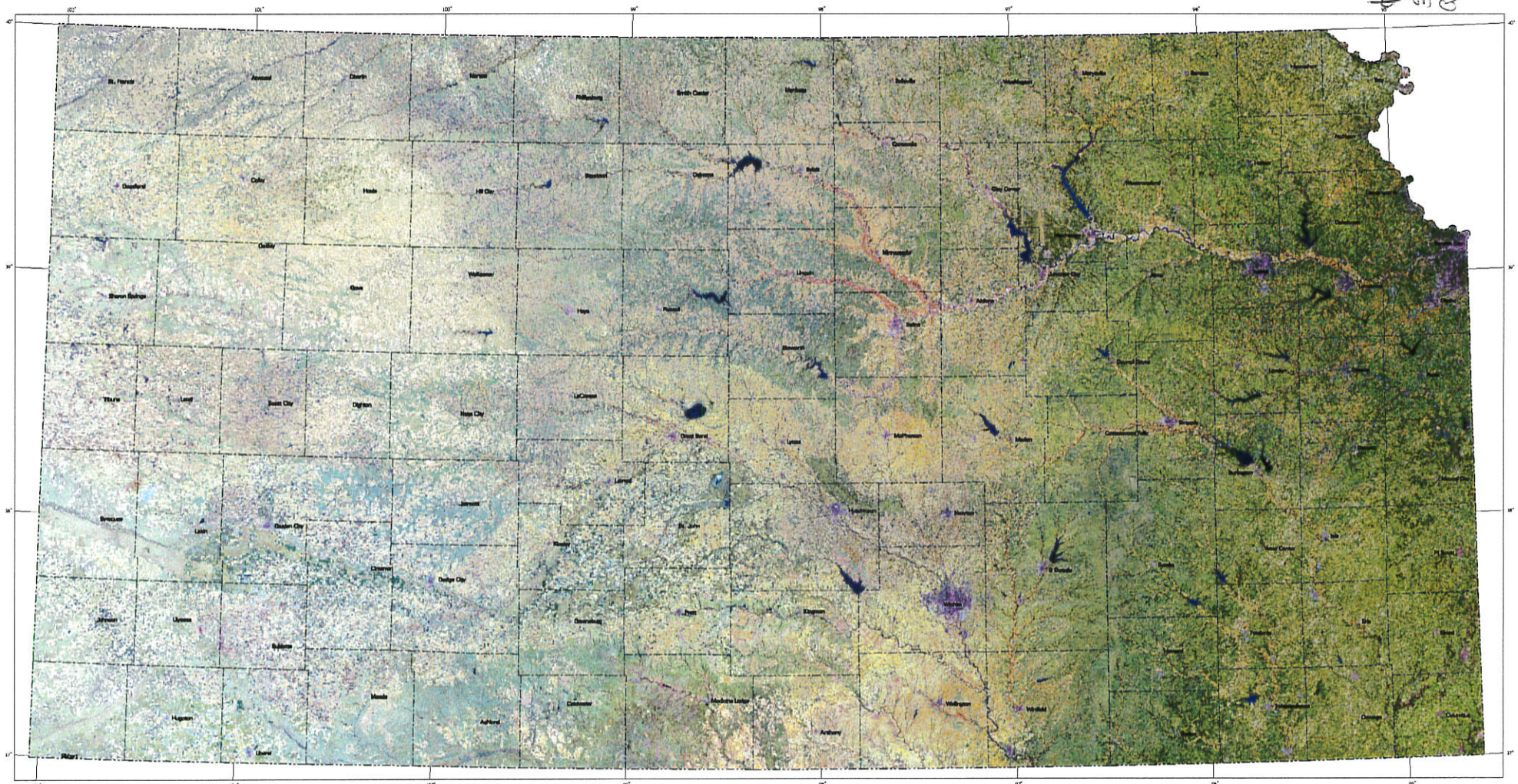
House Higher Education
5/17/03
Attachment #1

House Higher Education Committee

Mon - 17, 2003

Attachment #1

SATELLITE VIEW OF KANSAS

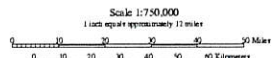


- 1. High Plains
- 2. Central Plains
- 3. Great Plains
- 4. Transition Zone
- 5. Wetland Region
- 6. The Hills
- 7. Metropolitan/Plains Interface
- 8. South Hill
- 9. Natural Grasslands
- 10. The Hills
- 11. Great Plains

Satellite View of Kansas is a mosaic of 16 Landsat Thematic Mapper (TM) satellite images acquired during the time span of 1988 through 1995. The TM instrument records both reflected and emitted energy from the earth's surface in 7 regions, or bands, of the visible and infrared portions of the electromagnetic spectrum. Although the images displayed here appear in natural color—vegetation appears green, water appears blue—they are actually a composite of 3 infrared and 1 visible bands. Infrared bands are used because they are less affected by atmospheric scatter from water vapor and other airborne particles than visible bands. The benefit is a high-contrast, low-noise image.

An amazing amount of detail about the physical landscape of Kansas can be seen from Landsat's average orbit 620 miles above the earth's surface. Rolling hills and high bluffs characterize the *Cherokee Lands* in the southeastern corner. The *Cherokee Lands*, just to the southwest, are less hilly and less forested. Both physiographic regions have similar rolling and hilly landscapes. Large areas of water can be seen as dark lines moving across the north-west corner of Cherokee County. The wooded and undulating landscape of the *Cherokee County* region shares the remarkably high elevations that Kansas is flat and lowlands. The darker green areas scattered throughout Cherokee County north to Woodson County are the

Acres with forests of the *Cherokee Hills*, known for their thick sandstone layers. About 750,000 years ago, at least two glaciers scoured the *Cherokee Region* in the northeast corner. The *Flint Hills* are known to one of America's best large exposures of native prairie grasslands. The rolling ridges of grass seen in Chase County are indicative of extensive grasslands. *Burner County*, one of Kansas' top wheat-producing counties, lies in the *Washington-McPherson Lands*. The large wet areas in Sumner County are fields covered with water table. The *Smoky Hills* change from sandstone-capped hills in the west to limestone-capped hills in the middle, with dark limestone outcrops in the west. The *Nebraska Chalk* formation can be seen as light purple to white markings in Grege County. Irrigated croplands dominate portions of the *Arkansas River Lands*. Crop circles marking from center-pivot irrigation can be seen concentrated in the lower half of Finney County. The *Red Hills* get their name from the red soil, or silt, found throughout the region's mesas and basin topography. The *High Plains* consist of open exposures of sandstone and gently rolling hills. Most of the land has been farmed, although a few areas of native short-grass prairie remain along draws and hills along stream valleys. From native prairie and forests to plowed fields and urban centers, the landscape of Kansas is a unique and beautiful mosaic.



KARS Kansas Applied Remote Sensing Program

KANSAS BIOLOGICAL SURVEY

GF RESBC Great Plains Regional Earth Science Application Center

Compiled, edited, and published by the Earth Applied Remote Sensing Program of the Kansas Biological Survey at the University of Kansas, Lawrence. Edward A. Marzahn, Director. Kevin P. Price, Associate Director.

Satellite View of Kansas was prepared by Jerry L. Whitaker, Michael E. Brown and Jessica Smith-Kearney. Printing for the program was provided by the National Aeronautics and Space Administration (NASA) and the East and Department of Wildlife and Parks.

For additional information see the KARS home page at <http://www.kars.ksu.edu>



KANSAS BIOLOGICAL SURVEY

Dr. Edward A. Martinko
Director, KBS
State Biologist

martinko@ku.edu



State Biological Survey of Kansas

KBS Director's Overview - Monday, March 17th 2003, Topeka Kansas
KS House Higher Education and Agriculture Committees



- Established in 1911, legislated in 1959
- To determine the character, location, & supply of native animals and plants in Kansas
- To report findings to the public



KS Applied Remote Sensing Program

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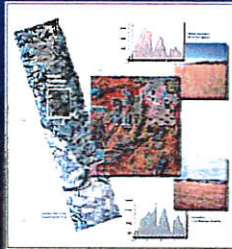


Close-Range Remote Sensing

Satellite Remote Sensing



Airborne Multi-Spectral & Hyperspectral Remote Sensing



KARS Application Development Emphases

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• **State & Local Governments**

- Statewide land use / land cover mapping
- Development of shared multi-agency digital archives
- Education and training



• **Agricultural Applications**

- Vegetation damage assessment
- Crop condition monitoring
- Crop yield monitoring & forecasting
- Strategic long-range forecasting



• **Wildlife Management**

- Wetlands & migratory bird habitat
- Evaluating & mapping wildlife habitat
- Predictive modeling of prairie chicken populations



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KANSAS BIOLOGICAL SURVEY

KARS Statewide Land Cover Mapping

*KBS Director's Overview - Monday, March 17th 2003, Topeka Kansas
KS House Higher Education and Agriculture Committees*



GAP 2001 is the 3rd statewide land cover map produced at KARS

- GAP is a national program to Identify "gaps" in species conservation and protection.
- Examine historic and current land cover change, and landscape change.
- Prediction and mapping of potential species habitat.

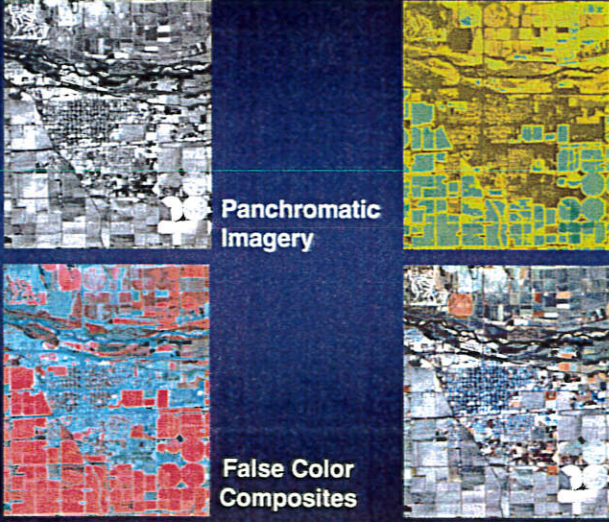
KANSAS BIOLOGICAL SURVEY | **NASA** | **The National Park Service** | **KANSAS WILDLIFE PARKS** | **EPA** | **KSSTATE** | **USGS** science for a changing world

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KANSAS BIOLOGICAL SURVEY

KARS KS Public Imagery Database

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Panchromatic Imagery

Vegetation Greenness

False Color Composites

Resolution - enhanced natural color composites

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KARS Cheyenne Bottoms Wetland Delineation



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Focus

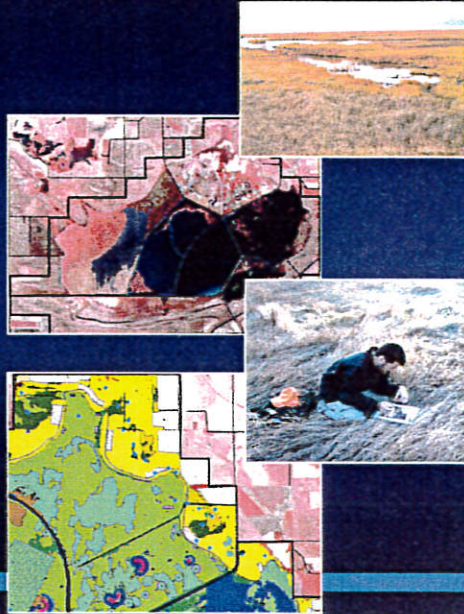
- Mapping land cover communities in Cheyenne Bottoms
- Special emphasis on monitoring cattail patches.

Description

- Use of NIR digital ortho-photography and GIS
- Collection of over 200 ground truth points
- Production of annual reports of current vegetation conditions

Application

- CHBWA managers assess the impacts of management strategies.



KARS Agricultural Applications

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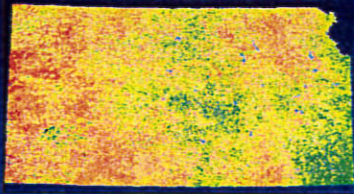
- Visualizing & Monitoring Crop and Range Conditions
- Visualizing Statewide Drought Progression
- Yield Forecasting
- Commercial Products for Decision Support



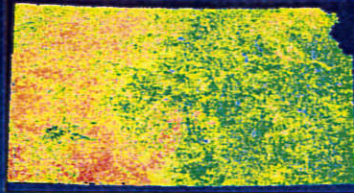
KARS Statewide Drought Reporting

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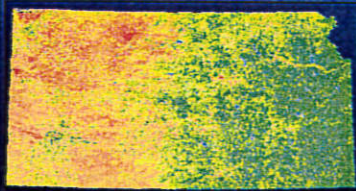
Drought conditions for summer crops start in the west and continue to spread from Late-April through Late-June...



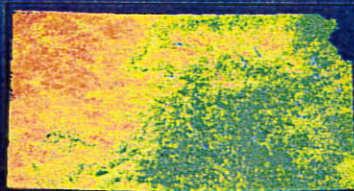
Late-April



Mid-May



Late-May

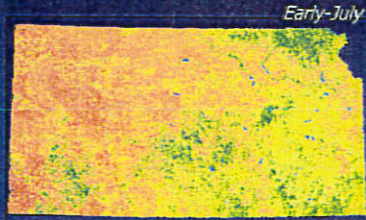


Late-June

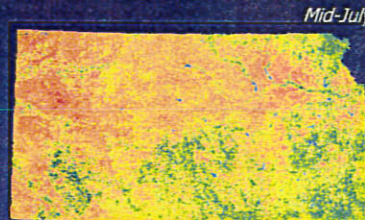
KARS Statewide Drought Reporting

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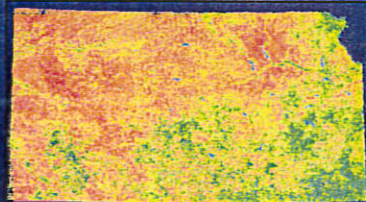
In Early-July drought spreads across the northern half of the state, turning southward through the Flint Hills by Early-August...



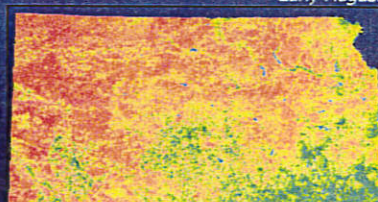
Early-July



Mid-July



Late-July



Early-August

KARS Kansas State Fair

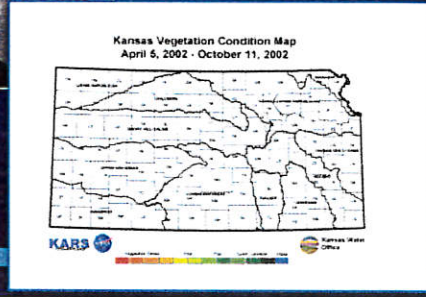
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Kansas Water Office
<http://www.kwo.org/>

KWO's animated drought maps were very popular and ran on a PC at the KWO booth throughout the fair.

KWO Staff (left) reviews the weekly KS Drought Report with a fair-goer while another person studies the KARS Vegetation Condition Map.



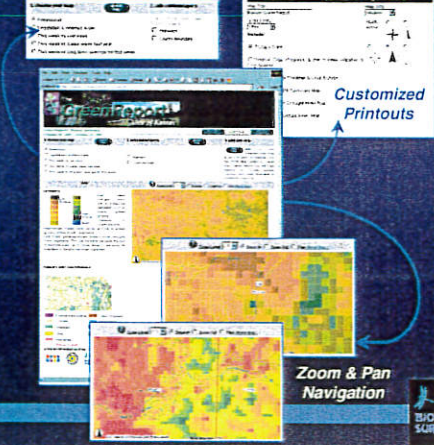
KARS Interactive Visualization Products

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State-based, free public service
http://mapster.kgs.ukans.edu/kars/kars_map.cfm

5 Vegetation Map Layers & Special Data Overlays



- Features**
- ArcIMS-Enabled Interactive Layers
 - Additional Ag Reports
 - Print Custom Maps & Reports

- Status:**
- KS version to be released in April 2003
 - Prototype for multi-state implementation

KANSAS BIOLOGICAL SURVEY

KARS Commercial Crop Yield Forecasts

www.tmaiaoutlook.com
www.soygrowers.com

Crop Yield Planner™

Choose From 3 Different Crop Reports:

- Corn
- Soybeans
- Winter Wheat

View & Download KARS' Yield Forecast Tables

View Report Maps By Region

View, Save, or Print Yield Maps

Toggle Through Full Suite of GreenReport Maps

Corn Yield Forecast by Agriculture Statistics District (ASD)

Winter Wheat Yield Forecast by Agriculture Statistics District (ASD)

Jan Yield Forecast Map

GreenReport Maps

Tertra Metrics

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KARS Commercial Crop Yield Forecasts

American Soybean Association (ASA)

- New brochure
- Cooperative marketing arrangement with ASA
- Trade Show
- New subscription-based website

2002 Subscribers

Subscription Distribution:

- Louisiana
- Kansas
- Minnesota
- Ohio
- Michigan
- Switzerland and South Korea
- Indiana
- Iowa
- Oklahoma
- Illinois
- California

New for 2002!
Crop & Yield Outlook
 See How ASA & Informer™ are Working Together to Provide Agricultural Decision Support & Planning

ASA
 American Soybean Association

SOY GROWERS

FREE
 SELF
 OF
 PLANS

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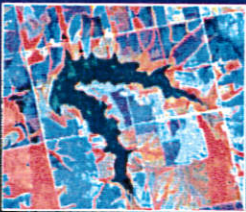
6-7

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Kansas Aquatic Mesocosm Project

Dr. Jerry deNoyelles

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- Perform research on the use of small experimental ecosystems as surrogates of natural aquatic habitats
- Simulate environmental change
- Develop modeling techniques
- Research focus:
 - Fisheries management
 - Impact of pharmaceuticals and hormone disruptors on water quality
 - Monitoring suspended sediments in reservoirs




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KANSAS BIOLOGICAL SURVEY

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Facilities:

- 100 experimental ponds
- 80 outdoor fiberglass tanks
- Many different *in situ* enclosures
- Experimental reservoir
- Laboratories
- Workshop
- Storage area for field equipment

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5
1.6

Kansas City Area Life Sciences Institute, Inc.

Update

Presented to: Higher Education Committee
State of Kansas
House of Representatives
March 17, 2003



Life Sciences, What is it?



Biology of:

- Humans
- Animals
- Plants

“The study of life processes in humans, animals and plants.”



Basic Premise of Life KC Sciences Initiative

Increase in basic life sciences research



Increase in Intellectual Property



Technology Development/Commercialization
(new products, e.g. diagnostics, therapeutics, foods, agricultural products)



Improves the quality of life for all citizens of the region and the nation.



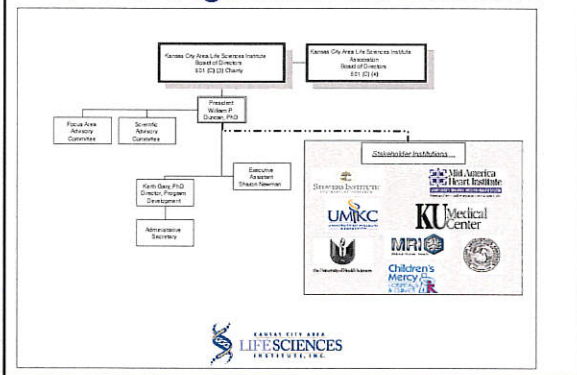
House Higher Education Committee

Meeting Date: 3/17/03

Attachment No.:

2

KCALSI Organizational Structure



KCALSI Role

- Represent the interests of the Kansas City Area life sciences community to the broader community.
- Coordinate the identification and development of major enabling technology research initiatives.
- Identify, qualify, and promote potential collaborative external research funding opportunities with government agencies, foundations, and private sector companies.



KCALSI Role (cont'd)

- Assist in the development and implementation of tools to facilitate sharing resources and information between key stakeholder institutions.
- Provide advocacy and economic development support through our sister organization, the Kansas City Area Life Sciences Institute Association (KCALSA).



Goal

- **Build a Critical Mass in Life Sciences Research in Kansas City**
 - Defined as: \$500M in annual life sciences research expenditures by key stakeholder institutions



Five Disease Focus Areas

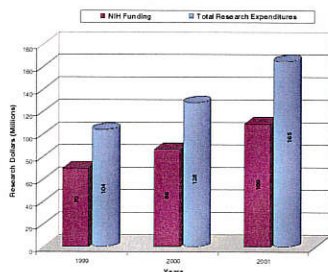
- Human Development and Aging
- Cancer
- Cardiovascular Disease
- Neurological Diseases
- Infectious Diseases

Enabling Technologies

- Genomics/Proteomics
- Information Technology
- Bioinformatics
- Imaging
- Analytical Sciences



NIH Funding and Total Research Expenditures at Stakeholder Institutions



Initial Enabling Technology Initiative: Proteomics

- Kansas City Proteomics Consortium
- Involves eight key stakeholders, \$53.4M initiative over 5 yrs for facilities, equipment and personnel
- \$13.9M secured since September 2001 (includes KCALSI Federal earmarks of \$5.2M and over \$1M in individual donor grants)



KCALSI Research Development Grants

- KCALSI funded eight collaborative Research Development Grants @ \$25K each to research teams at four stakeholder institutions
- Grants support preliminary research needed for submission of external proposals (anticipated minimum return of 4:1)



Expansion of Research Capacity at Stakeholder Institutions

- KU Medical Center Research Building and Hogle Imaging Center (\$84M)
- Stowers Institute for Medical Research (\$300M)
- UMKC Health Science Building (\$40M)
- Children's Mercy Hospital (\$155M)
- University of Health Sciences Life Science and Education Center (\$10M)



KU Medical Center

- \$29M — Brain Imaging Center
- \$65M — Research Facility



Hoglund Brain Imaging Center



**KUMED
Research Facility**





- \$250M facility
- 600,000 sq. ft.
- 600 scientists





Stowers Institute for Medical Research



Expansion of Regional Life Sciences Companies

- Bayer
- Aventis
- Quintiles
- Teva Neuroscience
- Cerner
- Boehringer Ingelheim Vetmedica
- Phoenix Scientific





- Bayer CropScience—Kansas City Core Technology Center
- Bayer Animal Health—\$220 M expansion





Bayer Animal Health Headquarters



Attraction of Life Science Companies

- Serologicals
- Caremark
- McKesson
- Intervet
- Bayer
- Deciphera





- Construction of its new EX-CYTE® manufacturing facility at Lawrence, KS
- Investment of 28 Million
- 60 new jobs





- Relocation of North American HQ & Production
- \$40M Investment
- 170 Jobs





- Relocation HQ & Research
- Venture Funding



KCALSI Commercialization Partners

- KU Office of Technology Transfer and Intellectual Property
- KC Catalyst
- BioMed Valley Inc.
- MRI Ventures
- KTEC

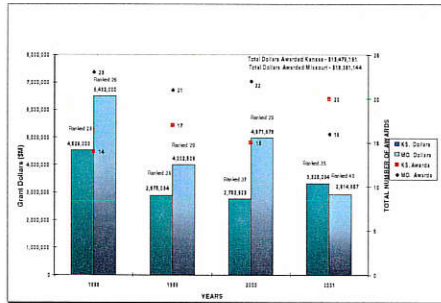


Representative Life Sciences Companies Spawned

- Cydex
- Xenotech
- ProQuest
- ImmunoGenetix Therapeutics
- Admunex Therapeutics
- CritiTech
- Sceptor Industries



SBIR Total Phase 1 and Phase 2 Awards and Dollars Awarded by Year Kansas and Missouri



Momentum in KC Region? Progress/Success to Date?

- Significant upward trend in research expenditures
- ~\$500M in ongoing or approved facilities & equipment investment (public and private investment)
- Success realized in recruitment of world class scientists (e.g. SIMR success rate = 80+%)
- Technology Development / Commercialization—Company Start-ups
- Capacity/Infrastructure Development (Proteomics Consortium)



Economic Impact?

- \$1M in Research Expenditures Supports 41 Jobs in the Community
- ~\$500M in Ongoing/Approved Investment in Facilities and Equipment = jobs in construction and related industries
- Commercialization of IP—New Startup Companies = Professional Services Demand



What Remains to be Done? Resources Needed?

- Continued Support of our Universities
 - Faculty, facilities, equipment
- Continue to Recruit the Best Scientists
- Development of Commercialization Infrastructure
 - Wet Lab Incubator Development
 - Capital Formation
- Workforce Development



KCALSI Annual Dinner and Life Sciences Research Day (March 26, 2003 and March 27, 2003)

