

1999 SENATE APPROPRIATIONS

SB 2328

1999 SENATE STANDING COMMITTEE MINUTES

BILL/RESOLUTION NO. SB 2328

Senate Appropriations Committee

Conference Committee

Hearing Date 1/29/99; Rehearing 2/10/99

| Tape Number | Side A | Side B | Meter # |
|--|--------|--------|-----------|
| 1 | X | | 225-3920 |
| 2/10/99 2 | x | | 2200-2428 |
| Committee Clerk Signature  | | | |

Minutes:

SENATOR NETHING: Opened the hearing on SB 2328, A BILL for an Act to amend and reenact section 4-05.1-05 of the North Dakota Century Code, relating to industrial hemp and alternative industrial use crops research; and to provide an appropriation.

SENATOR JOEL HEITKAMP: District 27, prime sponsor to testimony in support of SB 2328 (testimony attached) (tape 225-375)

SENATOR RUSS THANE: District 25, to testify in support of SB 2328. The '97 legislature gave full support to the study of hemp as a cash crop. It has demonstrated its hardiness in Richland County since its introduction during WWI when there was a shortage of fiber. It has a low amount of active cannabinoids. It has great potential as a cash crop and I urge your support of this bill.(tape 375-620)

SENATOR DEB MATHERN: District 45, to testify in support of SB 2328. Over 38 percent of North Dakota's income is from agriculture. The 1997 legislature approved the study of hemp. It is a value added crop and will bring needed income into the agriculture sector.

DAVID KRAENZEL: NDSU, Dept. of Agricultural Economics, provided research findings as per the HB 1305 mandate for the study of hemp. Dr. Kraenzel preceded his testimony by passing around sample products utilizing hemp. (testimony attached) (tape 755-1217)

SENATOR NETHING What is the time frame before actual processing could begin?

DAVID KRAENZEL: One year for base line research. The second year work could begin with farmers.

SENATOR LINDAAS: Have you looked into the federal government's barriers to hemp?

DAVID KRAENZEL: That's why we structured the market research as we did. We did the proposal on cost. The basic research could be conducted on small lots. (tape 1400)

SENATOR SOLBERG: Is there going to be difficulty in eradicating hemp once it has been grown?

DAVID KRAENZEL: I think if contained in research oriented, well managed plots, we can reduce the risk of it becoming out of control. Additionally, the growing season would reduce the risk of that.

SENATOR SOLBERG: Is it going to be easy for a farmer to diversity back to another crop?

DAVID KRAENZEL: Yes, a farmer will be able to do that. (tape 1643)

SENATOR BOWMAN: The Canadians have been into hemp for some time. Have you worked with any Canadian researchers?

DAVID KRAENZEL: Yes, we are in the early stages and resources are limited. County agents along the border have been working together.

SENATOR ANDRIST: Are we behind Canada?

DAVID KRAENZEL: Initially it is a niche-type market. However, indications are it is a growth market.

SENATOR ANDRIST: Where does federal government clearance come in?

DAVID KRAENZEL: It is my understanding it can be undertaken as a research-type project.

SENATOR LINDAAS: Is it an annual plant?

DAVID KRAENZEL: Yes. (tape 2125)

SENATOR TOMAC: Are you aware of any needs for chemical control?

DAVID KRAENZEL: No, and our short growing season will also provide control.

DUSTIN MATHERN: NDSU Research Assistant presented objective, but supportive information on research findings. (testimony attached) (tape 2235-2920)

JOHN LEPPERT: ND Department of Agriculture, Noxious Weeds Specialist, to testify in support of SB 2328. (testimony attached) (tape 2920-3117)

GERALD KEMMIT: Bureau of Criminal Investigation presented testimony expressing concerns about the relationship of hemp to drugs. Industrial hemp usually stays below 3 percent level; however, officials would have to go out to determine levels because of the plant similarity

to marijuana. In Canada, investigators go out 3-4 times per year to test. This will put extra burden and expense of the Bureau. The Bureau does want to be involved in the bill. (tape 3154-3335)

SENATOR BOWMAN: Couldn't these costs be assessed back to the growers?

GERALD KEMMIT: There will be additional costs that will need to come from somewhere.

SENATOR GRINDBERG: Couldn't we use monitoring that is currently in place?

GERALD KEMMIT: Because of the controlled substance level, the only ones that can handle this level would be from the Bureau.

SENATOR NETHING: Unless we changed the law.

GERALD KEMMIT: The federal government has regulations. (tape 3645)

DAVID KRAENZEL: That is one of the researchable questions that this study could address.

SENATOR ANDRIST: Could varieties be developed that would be physically distinct from those varieties that have high drug levels?

DAVID KRAENZEL: Genetically modified crops are the wave of the future and that is a distinct possibility.

SENATOR NETHING: Closed the hearing on SB 2328. (tape 3920)

2/10/99 (Tape 2, Side A, 2200-2428)

SENATOR NETHING: Reopened the hearing on SB 2328.

SENATOR SOLBERG: Presented the amendments to SB 2328 which basically took out Section 2, the appropriation; and adds "under federal law . The growing of hemp would jeopardize their entire federal funding.

SENATOR SOLBERG: Moved do pass amendments to SB 2328

SENATOR TALLACKSON: Seconded the motion.

ROLL CALL: Unanimous Voice Vote Carried to do pass amendments to SB 2328.

SENATOR SOLBERG: Moved do pass SB 2328 as amended.

SENATOR NAADEN: Seconded the motion.

ROLL CALL: 14 YEAS; 0 NAYS

CARRIER: SENATOR SOLBERG

SENATOR NETHING: Closed the hearing on SB 2328.

Date: 2/10/99
Roll Call Vote #: 1

1999 SENATE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. SB 2328

Senate APPROPRIATIONS Committee

Subcommittee on _____
or
 Conference Committee

Legislative Council Amendment Number 98325.0101

Action Taken Do PASS

Motion Made By Sen. Solberg Seconded By Sen. Tallackson

| Senators | Yes | No | Senators | Yes | No |
|-------------------------------|-----|----|----------|-----|----|
| Senator Nething, Chairman | | | | | |
| Senator Naaden, Vice Chairman | | | | | |
| Senator Solberg | | | | | |
| Senator Lindaas | | | | | |
| Senator Tallackson | | | | | |
| Senator Tomac | | | | | |
| Senator Robinson | | | | | |
| Senator Krauter | | | | | |
| Senator St. Aubyn | | | | | |
| Senator Grindberg | | | | | |
| Senator Holmberg | | | | | |
| Senator Kringstad | | | | | |
| Senator Bowman | | | | | |
| Senator Andrist | | | | | |

Total (Yes) Unanimous No _____

Absent _____

Floor Assignment Block 1

If the vote is on an amendment, briefly indicate intent:

Date: 2/10/99
Roll Call Vote #: _____

1999 SENATE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. SB 2328

Senate APPROPRIATIONS Committee

Subcommittee on _____
or
 Conference Committee

Legislative Council Amendment Number 98325.0101

Action Taken DO PASS AS AMENDED

Motion Made By Sen. Solberg Seconded By Sen. Naaden

| Senators | Yes | No | Senators | Yes | No |
|-------------------------------|-----|----|----------|-----|----|
| Senator Nething, Chairman | ✓ | | | | |
| Senator Naaden, Vice Chairman | ✓ | | | | |
| Senator Solberg | ✓ | | | | |
| Senator Lindaas | ✓ | | | | |
| Senator Tallackson | ✓ | | | | |
| Senator Tomac | ✓ | | | | |
| Senator Robinson | ✓ | | | | |
| Senator Krauter | ✓ | | | | |
| Senator St. Aubyn | ✓ | | | | |
| Senator Grindberg | ✓ | | | | |
| Senator Holmberg | ✓ | | | | |
| Senator Kringstad | ✓ | | | | |
| Senator Bowman | ✓ | | | | |
| Senator Andrist | ✓ | | | | |

Total (Yes) 14 No 0

Absent 0

Floor Assignment Sen. Solberg

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

SB 2328: Appropriations Committee (Sen. Nething, Chairman) recommends **AMENDMENTS AS FOLLOWS** and when so amended, recommends **DO PASS** (14 YEAS, 0 NAYS, 0 ABSENT AND NOT VOTING). SB 2328 was placed on the Sixth order on the calendar.

Page 1, line 2, remove "; and to provide an"

Page 1, line 3, remove "appropriation"

Page 1, line 11, after "may" insert ", if allowed under federal law,"

Page 1, remove lines 18 through 22

Renumber accordingly

STATEMENT OF PURPOSE OF AMENDMENT:

DEPARTMENT 640 - AGRICULTURAL EXPERIMENT STATION

SENATE - This amendment provides that the experiment station may conduct industrial hemp research if allowed by the federal government.

The appropriation section is removed which would have provided \$300,000 from the general fund to North Dakota State University for industrial hemp or other alternative industrial use crop research during the 1999-2001 biennium.

1999 HOUSE AGRICULTURE

SB 2328

1999 HOUSE STANDING COMMITTEE MINUTES

BILL/RESOLUTION NO. SB 2328

House Agriculture Committee

Conference Committee

Hearing Date 2-26-99

| Tape Number | Side A | Side B | Meter # |
|---|--------|--------|------------|
| One SB 2328 | x | | 35.9 to 55 |
| | | x | 0.0 to 2.0 |
| Committee Clerk Signature <i>Arliu Hanson</i> | | | |

Minutes:

Summary of bill: Relating to Industrial Hemp and alternative industrial uses crops research.

Sen D Mathern: Dist 45.. (Testimony attached) This testimony prepared by her son Dustin

Mathern. Very good material.

Rep Brusegaard: What was the Senate amendment?

Sen D Mathern: Yes they took out the appropriation. Turn the funding over to S-Bar. If they

didn't take it out NDSU could have a chance of losing some Fed Research money because

Hemp is designated as a drug.

John Leppert: Noxious Weed Specialist with plant service div ND Department of AGR.

(Testimony attached) Would like to have some money restored.

Rep Mueller: How about Sen Mathern testimony and if money not taken out would lose fed

funding.

Page 2

House Agriculture Committee

Bill/Resolution Number Sb 2328

Hearing Date *Click here to type Hearing Date*

John Leppert: No I don't think that's true.

Rep Rennerfeldt: What's the threat with this plant. Suppose we get to point of planting it. Then will it spread into the tree rows, etc.

John Leppert: Easy to control. Don't see it as a real problem.

Rep Froelich: Is this edible to livestock?

Gerald Kimitz: Bureau of Criminal Investigation. There are some things we can do to help USDA NDSU. We can do research and come up with different strains and different color so as to distinguish if from the Drug.

Chm Nicholas: Level of profitability is somewhere in the \$300 per acre range. Crop could be used for whole host of answers to the farm problems.

Rep Froelich: Don't they confiscate the vehicles & guns recovered in State.?

Motion by Rep Stefonowicz for a DO PASS Second by Rep Pollert

Vote total YES 13 NO 0 ABSENT 2

Carrier Rep Stefonowicz

Norvigin

Date: 2-26-99
Roll Call Vote #:

1999 HOUSE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. 2328

House AGRICULTURE Committee _____

- Subcommittee on _____
or
 Conference Committee

Legislative Council Amendment Number _____

Action Taken Do Pass

Motion Made By Stefonowicz Second By Pollert

| Representatives | Yes | No | Representatives | Yes | No |
|-----------------------------|-----|----|-----------------|-----|----|
| Eugene Nicholas, Chaiman | ✓ | | Bob Stefonowicz | ✓ | |
| Dennis E. Johnson, Vice Chm | ✓ | | | | |
| Thomas T. Brusegaard | ✓ | | | | |
| Earl Rennerfeldt | ✓ | | | | |
| Chet Pollert | ✓ | | | | |
| Dennis J. Renner | ✓ | | | | |
| Michael D. Brandenburg | | | | | |
| Gil Herbel | ✓ | | | | |
| Rick Berg | ✓ | | | | |
| Myron Koppang | ✓ | | | | |
| John M. Warner | ✓ | | | | |
| Rod Froelich | ✓ | | | | |
| Robert E. Nowatzki | ✓ | | | | |
| Phillip Mueller | ✓ | | | | |

Total (Yes) 13 No 0

Absent 2

Floor Assignment Stefonowicz

REPORT OF STANDING COMMITTEE (410)
February 26, 1999 1:51 p.m.

Module No: HR-35-3706
Carrier: Stefonowicz
Insert LC: . Title: .

REPORT OF STANDING COMMITTEE

SB 2328, as engrossed: Agriculture Committee (Rep. Nicholas, Chairman) recommends DO PASS (13 YEAS, 0 NAYS, 2 ABSENT AND NOT VOTING). Engrossed SB 2328 was placed on the Fourteenth order on the calendar.

1999 TESTIMONY

SB 2328

October 22, 1998

North Dakota State University

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Tel. 701.231.7441

Fax 701.231.7400

The Honorable Jack Dalrymple
P.O. Box 220
Casselton, ND 58012

Reference: *Industrial Hemp as an Alternative Crop in North Dakota*, Ag Econ Report 402, North Dakota State University, Fargo, ND. Prepared in compliance with House Bill 1305, July 23, 1998.

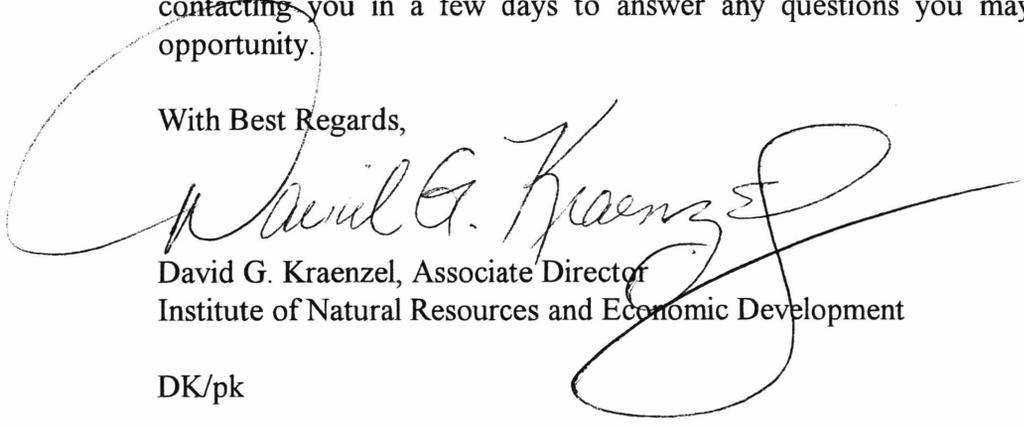
Dear Jack:

Please find enclosed a draft proposal requesting funding for baseline research on industrial hemp as an alternative crop in North Dakota. The proposal was prepared to answer your question posed during testimony held in early September, "What is the cost of the research recommended in your report?"

An interdisciplinary team of NDSU research and extension personnel met and discussed the subject at length. This discussion formed the basis for development of the enclosed proposal. The research focus is on the markets, agronomics, and processing of fiber. The team feels the total range of potential uses for industrial hemp or substitutes should be explored. A copy of the minutes of this meeting is enclosed for your background information.

Your comments and suggestions on the proposal are appreciated as we seek to respond to the continued interest in research on alternative crops to benefit North Dakota. I will be contacting you in a few days to answer any questions you may have regarding this opportunity.

With Best Regards,



David G. Kraenzel, Associate Director
Institute of Natural Resources and Economic Development

DK/pk

Enclosures:

1. Project Proposal: Market, Processing and Production Assessment for Industrial Hemp/Alternative Industrial Use Crops (flax, kenaf (northern varieties), and others)
 2. Minutes: Hemp Study Proposal Meeting, October 13, 1998
- c: Legislative Council - Representative Monson, Representative Olson, Representative Nichols, Senator Heitkamp, Senator Sand, Senator Thane
- Mr. John Bjornson
Dr. Cole Gustafson

SUBJECT: Hemp Study Proposal (Conference Call)

DATE: October 13, 1998

The following people participated in a conference call coordinated/chaired by David Kraenzel on this date to discuss development of a follow on industrial hemp research project proposal to address the recommendations presented in the initial North Dakota mandated (House Bill 1305) hemp study (NDSU Ag Econ Report 402, *Industrial Hemp as an Alternative Crop in North Dakota*):

| | |
|----------------|---|
| Fargo | David Kraenzel, Agricultural Economics Tim Petry, Agricultural Economics Ed Janzen, Agricultural Economics Al Schneiter, Plant Sciences Burton Johnson, Plant Sciences Rod Lym, Plant Sciences Rich Zollinger, Plant Sciences Dennis Wiesenborn, Ag & Biosystems Engineering |
| Carrington REC | Blaine Schatz |
| Dickinson REC | Kris Ringwall Pat Carr |
| Hettinger REC | Dan Nudell |
| Langdon REC | John Lukach |
| Minot REC | Jay Fisher (participated from Fargo site) |
| Williston REC | Jerald Bergman |

The objective of the meeting was to get the primary “players” interested in the hemp study together to discuss issues and concerns, to establish an initial dollar figure for the project proposal, and to identify project leadership.

David Kraenzel provided an overview of work to date and emphasized that the project as envisioned would be titled “Industrial Hemp and Other Industrial Crops Research Project”. The agreed upon strategy is to broaden the project focus to include other alternative oil and fiber crops (i.e., flax, jute, kenaf, abaca, etc.). The project could then be re-channeled if the numerous uncertainties and unknowns related to hemp create a stumbling block making research on hemp near impossible.

Burton Johnson outlined the following agronomic factors that might be considered with no priority indicated in the order listed:

- | | |
|-----------------------------|----------------------------|
| - variety component | - fertility management NPK |
| - plant date | - insects/disease |
| - plant arrangement | - weed control |
| - solid seeding vs row crop | - harvest |
| - seeding rate | |

The desirability of preferring 50 treatments per site for each of the areas to be considered was noted.

(Hemp Study Proposal, Conference Call, October 13, 1998)

Questions/concerns discussed included:

1. Weed control!
 - hemp as a *weed* in subsequent crop years
 - weed control *within* the crop
 - hemp's current classification as a *prohibited* noxious weed
2. Adaptability?
3. Fit in crop rotation patterns?
4. Harvesting methods, equipment required?
5. Availability of seed?
6. Regulatory and security/control issues?
7. Focus on oil or fiber?

The interests of the sponsoring legislators (focus on fiber) and the uncertainty of the longer growing season requirement for oil seed production points the primary focus of the study to the fiber area. Dennis Wiesenborn noted that NDSU does not currently have the infrastructure for fiber analysis. The group felt that initially Dennis could coordinate contracting outside services for fiber analysis.

An informal poll of the participants indicated that each of the Research/Extension Centers would be interested in participating in the project; funding to be on a standardized basis consistent with degree of participation.

After discussion of cost aspects and input from Al Schneiter and Burton Johnson on agronomic studies conducted in the past the group (by consensus) agreed on the following **annual budget** to be included in the initial proposal:

| | |
|----------------------------------|------------------|
| Markets and Economic Feasibility | \$ 30,000 |
| Agronomic Production Studies | \$ 90,000 |
| Processing Evaluation Activities | <u>\$ 30,000</u> |
| TOTAL | \$150,000 |

The above budget does **not** include costs that might be incurred to meet regulatory requirements. **Regulatory costs are over and above the budget outlined.** The group felt that the regulatory aspects could best be addressed by the legislators supporting the proposal, rather than the research group.

It is envisioned that the initial proposal would encompass a 3-year project (\$450,000 total).

Tim Petry expressed the need/concern to ensure that the above be identified as **additional** funds and not be taken from our existing budgets. David Kraenzel emphasized that this would be a **new project** going after **new money** on a **cost plus** (for regulatory requirements) basis.

(Hemp Study Proposal, Conference Call, October 13, 1998)

The group, with the consent of those identified, assigned the following leadership responsibilities:

| | |
|---------------------------------------|-------------------|
| Project Leader/Principal Investigator | Burton Johnson |
| Markets and Economic Feasibility | David Kraenzel |
| Agronomic Production Studies | Burton Johnson |
| Processing Evaluation | Dennis Wiesenborn |

David Kraenzel and Burton Johnson will prepare the initial two-page proposal that is needed to get the project initiated. Appropriate contacts will be made as deemed essential by the project leaders, e.g., Cole Gustafson, the legislative committee, SBAR, etc. The goal is to have this initial proposal completed by October 16, 1998.

The North American Industrial Hemp Council is holding its Annual Conference, November 5-7, 1998 in Washington, DC. Representative David Monson, North Dakota, is speaking at one of the program sessions. He requested 150 copies of NDSU Ag Economics Report 402 (*Industrial Hemp as an Alternative Crop in North Dakota*) which was prepared in response to the North Dakota state legislature mandate. David Kraenzel indicated that he had been invited to make a presentation at the conference but declined because of previous commitments. A number of key people with interests in hemp production and marketing from both the U.S. and Canada are scheduled to be on the program. The Conference Brochure can be viewed at <http://naihc.org/news/conf98/broch1.html>. It is the feeling of several members of the group that it would be very beneficial to have 2 or 3 members of the research team attend this conference if funding can be arranged.

Notes taken and summary prepared by Ed Janzen: If misunderstandings, misrepresentations, or serious omissions are noted please call Ed Janzen (231-7384) or David Kraenzel (231-7374) and revised/corrected notes will be prepared and distributed.

**Project Title: Market, Processing and Production Assessment for Industrial Hemp/
Alternative Industrial Use Crops (flax, kenaf, and others)**

Departments: Agricultural Economics, Plant Sciences, Agronomy (through the Agricultural Experiment Station)

Situation:

The 1997 North Dakota Legislature passed House Bill Number 1305 mandating the North Dakota State University Agricultural Experiment Station to do a white paper study of industrial hemp as a possible alternative crop for production in North Dakota.

Findings:

This preliminary study (NDSU Ag Econ Report 402, *Industrial Hemp as an Alternative Crop in North Dakota*, July 23, 1998) reports on current efforts to define existing world markets and possible U.S. markets for industrial hemp as well as resulting economic feasibility should production be legalized. A large percentage of the information available on industrial hemp is by non-agriculturists. This indicates a need for North Dakota to continue working with its agricultural counterparts to bring this potential alternative crop into the agricultural research domain.

- The industrial hemp world market consists of over 25,000 products in nine sub-markets: agriculture, textiles, paper, recycling, automotive, furniture, construction materials, food/nutrition/beverages, and personal care. These products are made or manufactured from raw materials derived from the industrial hemp plant: fiber, hurds and hemp seed/grain.
- World hemp fiber production has declined from over 400,000 tons in 1961 to 113,000 tons in 1996. India, China, Russia and Korea are the major low cost producers. This constitutes about 250,000 acres in production worldwide. Preliminary figures for 1997 indicate that this downward trend continues.
- A revitalization of industrial hemp may be occurring as indicated by projected increased demand (retail sales) from \$75 million in 1997 to \$250 million by 1999 worldwide (*Wall Street Journal*, April 24, 1998). Various reasons that would explain this phenomenon include technological advances in processing, increased prices, or interpretation of existing information.
- The largest market opportunity for North Dakota identified in this report may be hemp seed oil. This opportunity was also identified by the University of Kentucky (July 1998). North Dakota may have a comparative advantage because a state of the art multi-seed oil processing facility already exists that is capable of processing hemp seed.

**Project Title: Market, Processing and Production Assessment for Industrial Hemp/
Alternative Industrial Use Crops (flax, kenaf, and others)**

Findings: (continued)

- Hemp hurds appear to be price competitive with wood chips, fine wheat straw, other types of animal bedding, and other high-end pet needs. Hurds may also be a complement or substitute material in strawboard production.
- Certified seed production is a market opportunity.
- Initially hemp appears to be comparable to barley. However, a 1998 Kentucky study projects higher returns from \$220.15 per acre for producing hemp seed for crushing to \$605.91 for certified seed.
- Historically imported jute and abaca were intense competitors with American industrial hemp.
- Law enforcement agencies have legitimate concerns about their ability to enforce laws regulating industrial hemp production. Biotechnology advances such as terminator genes may create solutions.

Recommendation:

Since industrial hemp and its substitutes may have potential as an alternative rotation crop, it is recommended that the North Dakota Legislature consider action that would allow controlled experimental production and processing, then, necessary baseline production, processing, and marketing data could be collected and analyzed. For example, all new enterprises would require a critical threshold volume (CTV) in order to succeed in terms of economic profit. What is the volume and the acreage required to produce it? At the same time the concerns and costs of law enforcement agencies could be addressed.

**Project Title: Market, Processing and Production Assessment for Industrial Hemp/
Alternative Industrial Use Crops (flax, kenaf, and others)**

Purpose:

The purpose of the project will be to conduct thorough baseline research on industrial hemp and other alternative industrial use crops (flax, kenaf and others) regarding marketing, production and processing. The information/data will be used to assist in identification of opportunities and evaluation of potential strategies for alternative industrial use crops.

Research Agenda:

- **Market analysis:** A thorough analysis of potential market segments will be completed to identify specific target market segments. An analysis of customers, competitors, markets, external factors, and market opportunities will be completed for the selected target market segments. Concurrent activities will include identification of implementation issues/interests and evaluation of potential market strategies.
- **Agronomic production:** Research will be conducted at the Research and Extension Centers throughout the state. Factors to be researched include variety component, plant date, plant arrangement, solid seeding versus row crop, fertility management, insect/disease issues, weed control, and harvesting aspects. Research costs are estimated based on a 50 treatment scenario.
- **Processing:** Research will include oilseed processing analysis to determine hemp seed oil applicability to product market criteria. This may include coordinated efforts with private processing partners. Fiber analysis will be conducted utilizing outside contract services given the infrastructure limitations of current resources.

Budget:

This is a two year project with a budget of \$150,000 per year, plus the cost of externalities (permitting, security, fencing and other requirements related to regulatory compliance). It will be used to support each research area as follows:

| | |
|----------------------|----------------|
| Market Analysis | \$ 30,000/year |
| Agronomic Production | \$ 90,000/year |
| Processing | \$ 30,000/year |

Administration and cost of externalities are expected to be funded in addition to this research budget in order to preserve the scientific integrity of the research.

Project Team:

The interdisciplinary research team will be chaired by Burton Johnson, Plant Sciences Department, who will also lead the agronomic production research in conjunction with the staffs of the Research and Extension Centers throughout the state. David Kraenzel, Agricultural Economics Department will lead the market analysis research and Dennis Wiesenborn, Ag & Biosystems Engineering Department will lead the processing research efforts.

INDUSTRIAL HEMP INTERDISCIPLINARY TEAM

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COMMISSIONER OF AGRICULTURE
ROGER JOHNSON



PHONE (701) 328-2231
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SB 2328
1/29/99

4

Senate Bill 2328
29 January 1999
8:30 AM
Harvest Room
John Leppert

Testimony before the Senate Appropriations Committee

Mr. Chairman and members of the committee, my name is John Leppert. I am a noxious weeds specialist in the Plant Services division of the North Dakota Department of Agriculture. I appear in support of Senate Bill No. 2328.

Recommendations were made within a white paper authored by David Kraenzel and others at North Dakota State University, entitled *Industrial Hemp as an Alternative Crop in North Dakota*, that controlled experimental production, processing and a marketing analysis be made for industrial hemp (*Cannabis sativa*). As an alternative cash crop, the study demonstrates that it may have the potential to offer high economic returns from the processing of its seed for oil, from the marketing of its seed for certified seed production, and from the processing of its stalks for its many fiber (e.g. fabric) and hurd (e.g. fiber board) uses. Further, of the six crops cited in the paper (barley, corn, hemp, potatoes, sunflower, and wheat), only one other (potatoes) demonstrated a greater profitability potential.

One of the stated goals of the Commission on the Future of Agriculture is to diversify and increase the value of agricultural production. It appears that industrial hemp may help achieve that objective, and in so doing significantly increase net farm income, improve the quality of rural life, and increase North Dakota's rural population.

As the *Grand Forks Herald* stated in a recent, highly supportive editorial (26 January), "Lawmakers...thinking is persuasive and ought to be heeded..."

I would be happy to respond to any questions. Thank you.

SB 2328
1/29/99

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1/29/99

North Dakota State Senate Appropriations
Harvest Room

Fellow Senators,

Hemp is a crop whose time has come in Canada. The Canadians are raising and rotating hemp quite successfully. Its uses are enormous. So as a sponsor of SB 2328, I feel the next step needs to be taken. We can't let ourselves fall further behind here in the states. This bill allows North Dakota State University to do what they do best, take a serious look at hemp's potential here in North Dakota.

If the federal government ever gets out of the business of micro managing how we can make a living we need to be ready for the prospect of raising hemp. When that day comes, and it will come, our farmers and ranchers will have the data in place to give them a new tool for the fight to save their farms. That's what we all talk about. We talk about alternative crops, diversification and allowing farmers to make a living. Hemp can help do that.

This product is labeled as a threat to society just because it has a bad cousin. How many of us in this room don't have a bad cousin.

Seriously folks, a lot of people came from a long ways away to talk to you about this. I know you will give them, as you always have, a fair hearing. I hope you can save your questions for them. They certainly know more about this crop than I.

Thanks for your time and consideration,

Joel C Heitkamp
Senator

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Senate Bill 2328
26 February 1999
10:00 AM
Peace Garden Room
John Leppert

Testimony before the House Agriculture Committee

Mr. Chairman and members of the committee, my name is John Leppert. I am a noxious weeds specialist in the Plant Services division of the North Dakota Department of Agriculture. I appear in support of Senate Bill No. 2328.

Recommendations were made within a white paper authored by David Kraenzel and others at North Dakota State University, entitled *Industrial Hemp as an Alternative Crop in North Dakota*, that controlled experimental production, processing and a marketing analysis be made for industrial hemp (*Cannabis sativa*). The study demonstrated that the crop has the potential to offer good economic returns for North Dakota producers. Of those cited in the paper (barley, corn, hemp, potatoes, sunflower, and wheat), only one other (potatoes) demonstrated a greater profitability potential.

The original Senate bill provided an appropriation up to \$300,000 during the next biennium for research at North Dakota State University. The current version of the bill has no funding. The removal of that language may very well mean that little or no research is likely to be conducted in such key production areas as seeding, fertility, and pesticide studies. We request that you restore at least some of those monies.

I would be happy to respond to any questions. Thank you.

Dustin Mathern

Testimony for Senate Bill #2328

I am in support of Bill #2328, ~~which would provide funding for alternative industrial crops.~~ In particular I believe that hemp, given its potential, warrants further research. Canadian farmers are already able to grow 23 different varieties of hemp. They are gaining knowledge that will help them to lower their production costs. In order to compete in this area it is time for North Dakota to begin researching hemp for industrial use. In fact, time is a critical factor that may determine our long-term competitiveness in this industry. However time should not force us to act haphazardly. Instead we should act concisely, with an end in mind.

First of all I would like to point out the complexity of industrial hemp. Most varieties have both a male and a female plant. Varieties will become accustomed to the region in which they are planted this process is called acclimation. There are 4 variables to this acclimation process.

The 4 variables are are:

Latitude: Maturation is triggered by the hours of light and dark

Variety: Product yields (seed or fiber) are characteristics of the different varieties

Climate: Precipitation and the growing season are factors in hemp's development

Soil: Acidic soil is not conducive to growth. Nitrogen is important.

Understanding North Dakota specific solutions to these variables are important for commercialized production.

I have outlined three objectives that the resulting research of this bill should address.

1. Experiment Stations should grow and evaluate varieties of hemp.

This research will shed light on the solutions for the before-mentioned variables. The idea is to identify the correct variety and cultivating technique for regions of North Dakota. The information is of direct benefit for a farmer that would eventually use it in his crop rotations.

There are three cultivating techniques for hemp. Produce hemp for fiber, seed, or dual-purpose.

Working with Law enforcement officers to determine the characteristics of wild hemp may give insight into what an adapted variety of hemp will naturally produce.

2. Advance processing knowledge.

Once the hemp is harvested it must be allowed to be processed and analyzed. The fiber extraction process is much like flax, which is made into linen. The costs of processing have always been a barrier to hemp production in the United States. Processing technology has developed very little in the last sixty years. Allowing the hemp to be processed will help to determine the quality of the crop as well as advance the knowledge of hemp processing. Hemp fiber products include clothing, rope, paper, auto panels, particleboard, animal bedding, plastics, etc.

Hemp seeds are sometimes dehulled, roasted and eaten. The other way that hemp can be processed is for its oil. The seed is pressed on a cold press. The oil of hempseed is very nutritious, comparable to soybeans.

Hemp oil is superior to many alternatives in the areas of cosmetics and paint bases. The seed should not be sterilized prior to being processed because it loses some nutritional value and is more prone to rancidity.

3. Identify cannabinoid measurement and analysis techniques

All cannabis contains cannabinoids. Different varieties contain different levels. Research should investigate ways to measure these levels, in particular THC. That is the psychoactive drug present between 4 and 20% in marijuana. All other industrial countries, besides the United States, have set the level of THC for industrial hemp below .3%. In addition there is another cannabinoid called cannabidol which works to counter the effects of THC. Cannabinoid analysis may become an easy way to identify industrial hemp. Indeed European countries are developing a hand-held THC detector.

I also believe that cooperation with law enforcement officers would be useful to determine the THC values of cannabis that is known to remain where industrial hemp was once planted. The THC level of hemp is naturally very low, the question is if it is low enough to meet today's standards.

- The next issue is the market for hemp. Right now the market for hemp is limited, due in part to lack of processing infrastructure. It is a marketing paradox. A producer will not build a facility if there is no supply, and a supplier will not grow the product if there is no producer to sell it to. Allowing research will help to get the ball rolling. Investment in infrastructure has to happen somewhere in an emerging market and it is often with the first mover. The opportunity lies in the fact that this is an emerging market. As a product hemp is extremely marketable. It has thousands of uses. For many products it is simply the best input. For other products it is an input that is renewable, easy on the environment, durable, and hip.

In closing, I feel that hemp is a product that can provide sovereignty to our farmers and economic development to our state.