

Preliminary Exploration of the Capabilities and Limitations of Publicly Accessible Language Models to Characterize a Food Opportunity System

Technical Report

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November 2025

1. Introduction

Food accessibility is commonly measured based on the distance to the closest food outlet, such as grocery stores ¹. While research highlighting the limitations of these conventional accessibility measures exists ²⁻⁵, most research and practical questions about the food system still requires obtaining accurate and up-to-date information on available food outlets. However, obtaining this information can be a challenge, particularly when intending to focus on food opportunities such as community gardens and food pantries, among others where consumers may access food at no or reduced costs ⁶. Unlike larger and persistent chain stores, these food opportunities operate under more limited capacities and often have limited resources to maintain up-to-date, well-structured websites. While organizations like the Kansas Food Bank ⁷, United Way of the Plains ⁸, and the Health and Wellness Coalition ⁹ have created different lists in various formats and for different users, they still require extensive manual work to keep updated, despite their limited resources.

Regardless of the accuracy and timeliness of the information on publicly available repositories, users still need to sift through them and the linked websites (if any) to find the details that meet their specific needs. Users include individuals seeking immediate food assistance for their families, policymakers intending to understand the food opportunity system for decision-making, or researchers studying its impact on populations or changes over time, among others. These challenges, along with the advances in today's large language models (LLM), motivate our investigation into how freely accessible LLMs can help these users retrieve accurate food opportunity system data from unstructured web sources.

We evaluated the freely accessible versions of commercially available language models (LMs) in obtaining accurate answers to questions about the local food system from the

perspectives of individual users (people seeking food assistance for themselves or their families). The goals were to (1) identify issues with publicly available food opportunity system data and (2) evaluate the extent to which these LMs recognize and overcome these issues in the responses provided.

2. Methods

This research investigated the efficiency and effectiveness of inquiring information about the food opportunity system as available online between October and November of 2025 using free or low-cost artificial intelligence tools. We assumed individuals in need may search directly for food opportunities that they can access or seek information from community resources such as libraries and websites like the Health and Wellness Coalition of Wichita. In this scenario, they may just look for a few food opportunities that fit the client's needs.

The language models included ChatGPT (Free version without signing in), Gemini Flash (free without signing in), Copilot (as provided by WSU to faculty members) to reflect that users may access free versions of commercial LMs through public computers or through their work computers. We assessed the performance of the selected language models in supporting individuals with 0-shot prompting based on the assumption that people looking for food assistance may not have access to state-of-the-art paid language models and that they may not be familiar with prompting techniques. The sets of prompts used in this preliminary study are shown in the Appendix. Some of the prompts were intuitively designed by researchers in the team while others were obtained in preliminary user studies by collaborators from the community including community resource librarians and local health department epidemiologists. The AI responses were evaluated by manually checking links and cross checking with known lists.

3. Results

In general, all AI tools required the mention of food- and assistance-related terms to produce lists of food pantries or meal services. Otherwise, prompts just asking for help would produce lists of various general programs like 211 or mental health behavioral lines, or even governmental offices and zoos. Prompts just asking for "food" resulted in restaurant

recommendations across platforms. Additionally, when the state was not specified, results from similarly named counties in other states (e.g., Allen County in Indiana instead of Kansas) were provided.

All three tools were somewhat inconsistent in providing key information such as addresses, phone numbers, operating hours, and direct links. Some responses provided all those details, while others lacked one or more, or linked to repositories, mostly the Kansas Food Source, unless another term (such as commodities or holiday distribution) was used. On some occasions, alternative links to County or City webpages or direct links to the food resources were included. Most resources in the responses could be verified online or by phone. However, each tool occasionally included outdated, low-visibility, or potentially incorrect listings that we could verify were not fabricated by the AI tool but could not confirm their current existence as a relevant food assistance resource due to insufficient online information or no response to a phone call to their number. None of the AI platforms consistently identified a specific pantry when providing its zip code and address. Table 1 summarizes the results of this preliminary study.

Table 1. Preliminary Results Summary

AI System	Criteria		Distinguished explicit/absent ID reqs.	Number of Applicable Food Resources (range)	Consistent Information Provided Across Prompts	Average % Pantries verified manually	Average % of Valid Links
	Location	Time-based					
ChatGP T Free	Met	Met after asking to clarify time	No	0-9	No	91%	91%
Gemini Flash (free)	Met	Auto-recognized time. Met criteria	Yes. Recommended calling ahead.	0-7	No	79%	98.9%
Copilot	Met	Errors in open times.	No	0-7	No	95%	98%

ChatGPT (Free version without signing in) mostly showed the results as a list of between 0 and 9 food opportunities and often included some additional general resources like listings and government assistance help resources. ChatGPT hallucinated when asked "Where is the Open

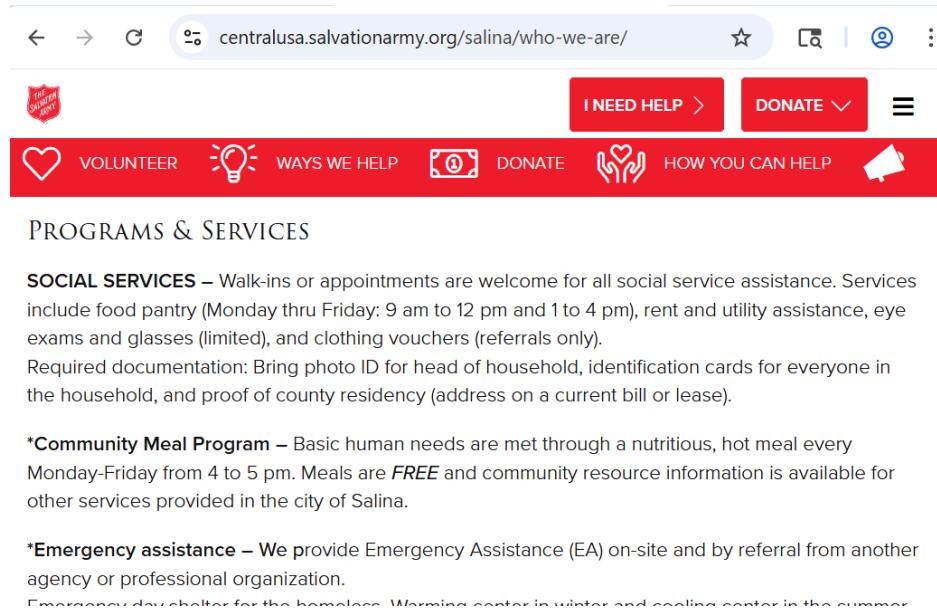
Door food pantry in Wichita?" by generating the name of a nonexistent pantry (i.e., "Interfaith Ministries – Open Door Food Pantry") and providing the phone number of "Humankind Ministries", an unrelated entity. There were also issues involving responses that were not hallucinated, but that were unverifiable. For example, the response to the prompt "Where can I get free food in Wichita?" included a link to a Time Magazine articleⁱ about community fridges. The prompt related to "holiday food distributions" resulted in a list of organizations with descriptions with no contact information or links (links provided in follow up prompts did not produce the desired holiday distribution information). Another prompt listed a garden with a websiteⁱⁱ that appeared to be an outdated site or a scam given the emphasis on donations and payments while lacking information on a location or other contact information.

Prompts to Gemini Flash 2.5 resulted in between 0 and 7 applicable food resources (between 1 and 6 food resources for prompts with the minimum information). When asked about walking distance from a specific address, Gemini acknowledged and estimated walking times (ranging from 9 to 17 minutes), though this was not always the case when using terms like "close to" in the prompt. Verification of pantry listings varied: between 40% and 100% of the pantries in a single response could be confirmed online or by calling the numbers provided. Of the links shared, 66% to 100% were functional, but some led to repositories rather than directly to the listed food resource. For example, a prompt for food resources in Crawford County returned a WIC recommendation with a link to the county's local resources page, requiring users to scroll to find the relevant section. When asked about "holiday food distributions", Gemini provided a list including resources that have offered holiday distributions in the past, but when visually checking the website, there was no updated information about the current year's distribution. For the outdated resources, Gemini refrained from listing exact dates and instead opted for the term "typically" to describe their nature. Similarly, when asked "Where is the Open Door food pantry?", one of the two addresses provided (which was linked to WhyHunger.org) was found to be incorrect after calling the phone number provided on the same listing.

ⁱ https://time.com/6198464/community-fridges-inflation-food-prices/?utm_source=chatgpt.com "Once a Pandemic Band-Aid, Community Fridges Stay Plugged In As Food Costs Soar"

ⁱⁱ D² Free Urban Farm, <https://my-snackies.com/d-squared>

When asked about current pantry availability, Gemini began by stating the date and time, then listed applicable options. If no match was found, it acknowledged that the pantry might have just closed or would open later. Regarding ID requirements, Gemini highlighted pantries that explicitly stated “no ID required” and distinguished them from those that made no mention of requirements. It consistently advised users to call ahead to confirm. However, there was at least one error identified: a pantry was listed as not requiring ID, despite the website clearly stating otherwise. In that case, the requirement was located just one paragraph above the meal program description referenced in the response, as shown in Figure 1.

A screenshot of a web browser displaying the Salvation Army website for Salina. The URL in the address bar is 'centralusa.salvationarmy.org/salina/who-we-are/'. The page features the Salvation Army logo at the top left. Navigation buttons for back, forward, and search are at the top. A main menu bar includes 'I NEED HELP >', 'DONATE >', and a three-dot menu. Below the menu are four buttons: 'VOLUNTEER' with a heart icon, 'WAYS WE HELP' with a lightbulb icon, 'DONATE' with a money bag icon, and 'HOW YOU CAN HELP' with a hand icon. The main content area is titled 'PROGRAMS & SERVICES'. Under 'SOCIAL SERVICES', it says 'Walk-ins or appointments are welcome for all social service assistance. Services include food pantry (Monday thru Friday: 9 am to 12 pm and 1 to 4 pm), rent and utility assistance, eye exams and glasses (limited), and clothing vouchers (referrals only). Required documentation: Bring photo ID for head of household, identification cards for everyone in the household, and proof of county residency (address on a current bill or lease).'. A note about the 'Community Meal Program' follows, stating 'Basic human needs are met through a nutritious, hot meal every Monday-Friday from 4 to 5 pm. Meals are *FREE* and community resource information is available for other services provided in the city of Salina.' A small note at the bottom of this section reads 'Emergency day shelter for the homeless. Warming center in winter and cooling center in the summer.'

PROGRAMS & SERVICES

SOCIAL SERVICES – Walk-ins or appointments are welcome for all social service assistance. Services include food pantry (Monday thru Friday: 9 am to 12 pm and 1 to 4 pm), rent and utility assistance, eye exams and glasses (limited), and clothing vouchers (referrals only). Required documentation: Bring photo ID for head of household, identification cards for everyone in the household, and proof of county residency (address on a current bill or lease).

***Community Meal Program** – Basic human needs are met through a nutritious, hot meal every Monday-Friday from 4 to 5 pm. Meals are *FREE* and community resource information is available for other services provided in the city of Salina.

***Emergency assistance** – We provide Emergency Assistance (EA) on-site and by referral from another agency or professional organization.

Emergency day shelter for the homeless. Warming center in winter and cooling center in the summer.

Figure 1. Screenshot of Salvation Army Meal program information accessed on 10/22/2025.

Microsoft Copilot (for WSU users) provided between 0 and 7 applicable food opportunities across prompts, along with suggestions to refine the query or create a calendar. More specific prompts to Copilot including location and/or time yielded mostly accurate, though not exhaustive, results. Location-based queries appeared to rely heavily on zip codes. When asked for pantries near a specific address, Copilot listed the closest options but did not account for accessibility, such as whether walking was feasible or if highways were involved. Queries about pantries “open now” produced mixed results, especially for those with nonconsecutive operating days (e.g., Tuesday and Thursday), where Copilot sometimes suggested a day when the pantry was closed. Prompts regarding ID requirements were handled well when the web

information explicitly stated “no ID required.” However, in cases where no mention was made, Copilot occasionally reassured users that no ID was needed despite the lack of confirmation. Still, it consistently recommended calling ahead to verify. Copilot also produced false responses based on outdated information, mostly due to the same issue of the year being located at the top of the page and not next to the rest of the dates provided on the site. When asked about “holiday food distributions”, it provided apparently relevant resources. However, two of the six resources provided were linked to a news story from 2023, on which it stated the resources would be available on “Thursday November 23, 2025” (which is a Sunday). The salvation army recommendation provided for 2025 also had a date of 2023 at the top (Table 2).

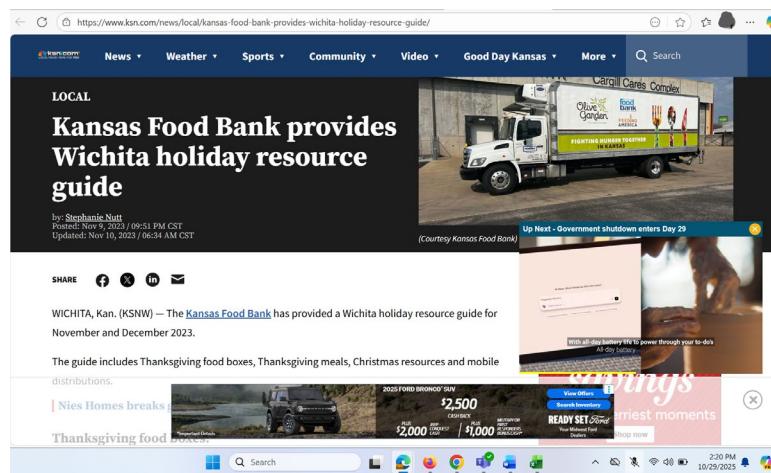
Table 2. Inaccurate response snippets with screenshots of source link showing incorrect year. Prompt: “Are there any holiday food distributions in Wichita?”(Microsoft Copilot). Date prompted: 10/29/2025.

United Methodist Open Door

- **Dates:** Nov. 20–22, 2025
- **Time:** 9 AM – 11:45 AM & 1 PM – 3:45 PM
- **Location:** 2130 E. 21st St. N, Wichita, KS
- **Details:** Thanksgiving food box distribution. [\[ksn.com\]](https://ksn.com)

The Lord’s Diner

- **Date:** Thursday, Nov. 23, 2025
- **Time:** 5:30 PM – 7:30 PM
- **Locations:** 520 N. Broadway & 2825 S. Hillside
- **Details:** Sit-down or to-go Thanksgiving meals. Mobile food trucks will also be at various community centers. [\[ksn.com\]](https://ksn.com)



Salvation Army Angel Tree Program

- **Application Period:** Oct. 14 – Nov. 15
- **Distribution Dates:** Dec. 12–13
- **Details:** Provides gifts and food assistance. Volunteer opportunities also available.
[\[centralusa.onarmy.org\]](https://centralusa.onarmy.org)

SIGN UP TO HELP WITH ANGEL TREES!

Oct 13, 2023



SHARE YOUR STORY

We would love to hear about your experience with The Salvation Army.

DONATE

A gift to The Salvation Army helps someone in your community.

Give Now

Or

Zip Donate Goods

Christmas and Angel Tree opportunities now available!

It's time to sign up to volunteer at an Angel Tree table in Towne East and Towne West Malls

You can view all available days and shifts at either location by logging in to our volunteer page at <https://salarmy.us/wichitavolunteers>. If you have any questions, please let me know, Theresa Franklin, at theresa.franklin@usc.salvationarmy.org or you can call me at 316-425-1633.

Volunteers are critical to these processes! Can you volunteer for a shift or two to help families in need during this

When asked about food opportunities close to a specific address, the responses from ChatGPT and Gemini were verifiable, although not necessarily close to the address provided (Wichita State University). Driving times were between 4 and 14 minutes (and equivalent walking times between 23 minutes and 2 hours and 7 minutes). Some recommendations were recognized by the response as being outside the desired time window (Monday at 2:00 pm). Copilot still provided inaccurate information, including recommending the Kansas Food Bank headquarters, which does not have a direct food distribution in the same location, and a church that could not be verified online or over the phone (the number provided was disconnected).

4. Discussion

LLMs promise the processing of large amounts of unstructured data to answer relevant questions in an efficient manner. However, there is still a disconnect between how structured these data should be to ensure consistently accurate responses. In the context of the food opportunity system, there is no control on the quality of online data, so there is an opportunity to investigate how to overcome structural data issues. We found that while most of the information available online is accurate and up to date, resulting in similarly mostly accurate and up to date responses, the following structural characteristics of the data proved to be a challenge for the LLMs that are readily accessible to the public:

- Failing to connect related information when text segments were separated by intervening text (e.g., overlooking the year at the top of a page when interpreting event dates).
- Generating dates that do not exist on the source website instead of flagging outdated information.
- Not detecting potentially fraudulent or obsolete pages based on available content.

Although humans can often recognize and resolve some of these irregularities when reading source material directly (depending on their backgrounds and web literacy), chatbot-generated lists may create a false sense of reliability, potentially directing people in need to non-existent locations or to existing ones at incorrect dates and times. These findings imply that the burden of ensuring accurate and up to date information is still on the side of the user.

In general, individuals should be explicit in the need for food assistance to avoid ambiguity. Providing the AI tool with the location and hours that they are seeking also helps to identify close options. While hallucinations were observed in a small portion of the prompts evaluated, the main issue was the outdated and unstructured nature of the information about these food opportunities. Asking the AI platform to provide several sources of information about the specific food opportunities identified may help the user verify their existence. Table 3 shows the prompt templates created by each one of the AI systems studied in this research when asking them to: “create a prompt that an individual in need should make to you when looking for food pantries, community gardens or soup kitchens close to their home or work and that is open at desired time. Make sure that the prompt leads to verifiable responses listing food pantries, community gardens or soup kitchens that can be found in more than one website and that are working (not on hold). The response should contain phone number, address, and link to the specific food resource website if applicable.” Preliminary implementation of these recommended prompts showed that issues with hallucination and inability to identify outdated information remain.

Table 3. AI generated prompt template to inquire about food assistance. Preliminary attempts showed that these prompts may not eliminate issues with hallucinations.

AI System	Recommended Prompt (needs to be evaluated)
ChatGPT Free	<p>"Hi — I'm looking for food assistance (pantry, meal service, community garden, etc.) near [your city or ZIP code]. I need a place that is open at around [desired time/day]. Could you please provide at least three working resources, each with a) name of the service, b) full address, c) phone number, and d) a link to the official website or listing verifying it is operating? Thank you!"</p>
Gemini Flash 2.5	<p>I need to find currently operating food assistance resources near my location. Please search for and provide a minimum of three resources (food pantries, community gardens with open harvest, or meal services/soup kitchens) that are confirmed to be open either now or during the specific time I provide below.</p> <p>My Current Location (or desired search area): [Enter Full Address, or Closest Intersection, or Zip Code, and City, State]</p> <p>Desired Open Time/Day (e.g., "open now," "open tomorrow at 10 AM," or "open Friday from 4 PM to 6 PM"): [Enter Desired Open Time and Day]</p> <p>For each resource found, the response must provide:</p> <ol style="list-style-type: none"> 1. Resource Name: (e.g., Community Food Pantry, St. John's Soup Kitchen) 2. Verified Status: Confirmed to be actively operating (not on hold). 3. Address: Full street address. 4. Phone Number: A direct contact number. 5. Operating Hours: The specific days and times it is open this week, or a link to a reliable schedule. 6. Website Link (if available): A link to the organization's specific page for hours and services (not a directory page). <p>Only list resources that have been verified by cross-referencing information from at least two reputable websites (e.g., Feeding America, 211, a local food bank's directory, or the organization's direct website). If a link is not available, provide an alternative link to a major directory listing (like 211) that confirms the information.</p>
Copilot	<p>I need help finding free food resources near [your address or ZIP code] or close to my work at [work address or ZIP code]. I'm looking for places that are open around [desired time or day], such as food pantries, community gardens, or meal services. Please only include options that are currently operating and listed on more than one website. I need the address, phone number, and a direct link to the food resource's website if available.</p>

This research informed a study that will be conducted with a planned design of experiments where all prompts will be evaluated through the three systems and all responses will be systematically assessed for accuracy with respect to the source and to a ground truth, to allow quantifying the quality of the LM and the quality of the data separately and consistently.

References

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9. Local Food Resources » Health & Wellness Coalition of Wichita.
<https://hwcwichita.org/local-food-resources/>.

Appendix

Prompt	Location		ID requirements	Open hours	Systems evaluated
	General	Address			
Are there any holiday food distributions in Wichita?	1				3
Any food banks available during weekdays in Johnson County?	1			1	1
Any food banks in Johnson County?	1				1
Any food pantries available weekdays in Butler County?	1				1
Any ID-free pantries in Douglas County?	1		1		1
Any pantries in Lyon County where ID is not needed?	1		1		2
Are there any food pantries or community gardens open right now close to 12930 E 21st St. N, Wichita, KS 67230 that does not require ID?		1	1	1	3
Are there any open food banks in Allen County?	1			1	1
Are there any places to get free food close to Derby on Wednesdays?	1			1	1
Are there food distribution at the Evergreen Recreation Center?					3
Are there food pantries in Harvey County that ask for ID?	1				1
Can I get food without ID in Kansas City?	1		1		1
Do pantries in Butler County need ID?	1		1		1
Find food assistance in Riley County that doesn't need ID.	1		1		1
Food banks in Reno County that don't require ID.	1		1		1
Give me a list of places where I can get free food close to me.		1			1
Give me information about food pantries and other free food resources walking distance from 3026 E 21st St. N, Wichita, KS 67214			1		3
Help during the evening in Shawnee County?	1			1	1
Help me find free food close to this address: 455 North Main Street Wichita, KS 67202		1			1
Help me find free food close to this address: 455 North Main Street Wichita, KS 67202			1		1
Help with food in Montgomery County.	1				2
Hi — I'm looking for food assistance (pantry, meal service, community garden, etc.) near 67230. I need a place that is open at around Monday, November 10 at 2:00 pm. Could you please provide at least three working resources, each with a) name of the service, b) full address, c) phone number, and d) a link to the official website or listing verifying it is operating? Thank you!		1	1	1	1
I am at 4912 E. New Jersey Dr Wichita KS 67210. Where can I find food near me?		1			3

I need a pantry open today in Sedgwick County.	1	1	1	1
I need help finding free food resources near 67230 or close to my work at 67260. I'm looking for places that are open around Mondays at 2:00 pm, such as food pantries, community gardens, or meal services. Please only include options that are currently operating and listed on more than one website. I need the address, phone number, and a direct link to the food resource's website if available.	1	1	1	1

I need to find currently operating food assistance resources near my location. Please search for and provide a minimum of three resources (food pantries, community gardens with open harvest, or meal services/soup kitchens) that are confirmed to be open either now or during the specific time I provide below.	1	1	1	1
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My Current Location: 1845 Fairmount Street, Wichita, KS 27260-0035.

Desired Open Time/Day: open on mondays at 2:00 pm

For each resource found, the response must provide:

1. Resource

Name: (e.g., Community Food Pantry, St. John's Soup Kitchen)

2. Verified

Status: Confirmed to be actively operating (not on hold).

3. Address:

Full street address.

4. Phone

Number: A direct contact number.

5. Operating

Hours: The specific days and times it is open this week, or a link to a reliable schedule.

6. Website Link (if available): A link to the organization's specific page for hours and services (not a directory page).

Only list resources that have been verified by cross-referencing information from at least two reputable websites (e.g., Feeding America, 211, a local food bank's directory, or the organization's direct website). If a link is not available, provide an alternative link to a major directory listing (like 211) that confirms the information.

I'm looking for food assistance in Topeka. I don't have any

1

1

1

ID

Looking for evening hours in Saline County.

1

1

2

Looking for pantries in Allen County with no identification needed.

1

1

2

Open now in Lyon County?

1

1

2

Open pantries in Riley County.

1

1

1

Places in Cowley County that require documentation.

1

1

1

Please help me find places that can give me free food close to me in Maize. What documents should I bring with me?

1

1

1

Show me food resources in Crawford County.	1			1
Show me pantries in Wichita that do not require ID	1	1		1
What food pantries or food banks are open on Monday afternoons in Wichita?	1		1	1
Where can I find food pantries in Sedgwick County	1			1
Where can I find food pantries in Sedgwick County?	1			1
Where can I get commodities in Wichita?	1			3
Where can I get food this evening in Reno County?	1		1	2
Where can I get free food in Wichita?	1			1
Where in Salina can I get food with just a photo ID?	1	1		2
Where is the nearest food pantry?				3
Where is the Open Door food pantry?				3
Where is the pantry I went to in 67214 on 11th Street?	1			3
Which places are open in Finney County?	1		1	2
Who's providing food in Leavenworth County?	1			1

