From Breadbasket to Dust Bowl:

Rural Credit, the World War I Plow-Up, and the Transformation of American Agriculture

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As the clouds of world war rumbled across Europe during the summer of 1914, the United States Congress debated the future of American agriculture, and specifically, how the federal government might intervene in the banking system in order to support agricultural production. At stake were significant questions about the influence of the nation-state: did the national government have the authority to assist in the expansion of mortgage credit to rural producers, who had limited access to long-term loans from regional banks and insurance companies? Should the reforms to the banking system that had been passed through the 1913 Federal Reserve Act be extended into the agricultural industry? What should be the future of rural development: farm consolidation, large-scale mechanization, or a commitment to a diffuse network of small-scale, low-technology farms? For decades, farmers had argued that they suffered from limited local credit markets, and many argued that they were constrained from expanding their operations because of the dearth of lenders willing to invest in agricultural improvement. Members of Congress embraced this cause, and for a few years, legislators negotiated the terms of a radical expansion of federal intervention in the rural economy.

In 1916 Congress established provided a mechanism that proved crucial to the reorganization of American agriculture with the passage of the Federal Farm Loan Act. This legislation appropriated funds from the U. S. Treasury to create a network of regional land banks that extended government-seeded, long-term, low-interest-rate mortgages on land and improvements. This program provided financing for American farms, building upon the precedent of decades of subsidies to railroads, homesteading, agricultural research, and irrigation.[1] During the crucial years of World War I these farm loans allowed expansion-minded American farmers to invest in new machines, consolidate operations, and modernize their facilities in order to produce ever-higher yields. Federal land banks financed agriculture at a moment of economic and technological transformation and, as a result, they spurred a material transformation in the nation's rural economy.

This article interrogates the Federal Farm Loan Act's impact on the southern Great Plains, where land banks invested the majority of farm mortgages during the late 1910s. By surveying the larger history of federal farm loans, this study asserts the impact of the federal land banks on wartime American agriculture. After 1917, the new

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[1]Gilbert Fite, *The Farmer's Frontier, 1865-1900* (Albuquerque, 1966); Rodman Paul, *The Far West and the Great Plains in Transition, 1859-1900* (New York, 1988); William Rowley, *The Bureau of Reclamation: Origins and Growth to 1945* (Denver, 2006); Fred Shannon, *The Farmer's Last Frontier: Agriculture, 1860-1897;* Richard White, *Railroaded: The Transcontinentals and the Making of Modern America* (New York, 2011).

federal land banks distributed millions of dollars in loans to wheat farmers on the Great Plains. The sudden availability of long-term, low-interest-rate mortgages in these historically undercapitalized lending markets funded the purchase of machinery, the consolidation of farms, and the unprecedented expansion of wheat acreage during World War I, a confluence of events known as the Great Plow-Up.[2] These government-seeded mortgages provided capital that proved crucial for transforming agriculture and played a significant role in modernizing farms on the Great Plains, proving key for the further consolidation and industrialization of American agriculture. At the same time, the federal government's intervention in the rural credit market also sought to neutralize the historical climatic and economic vulnerabilities that had discouraged lending in the region. Ultimately, the new land bank loans facilitated the push to plant the Plains in wheat, both severing the deep roots that had held the soil on the land for millennia and injecting a new reservoir of capital onto the dryland farms of the region.

Scholarly analyses of the impacts of World War I on the American homefront have featured the expansion of federal control over transportation networks, food policy, and political dissent. Yet despite the considerable literature on wartime conditions, scholars have overlooked one of the most pronounced and long-lasting effects of this transformation: the evolving relationship between agricultural producers and the state. Vastly increased production was the most material consequence of this reshaping of the rural landscape, and it reordered the relationship between the United States and its allies while creating surpluses of grain and cotton that would vex agricultural policymakers for decades. In brief, the larger geopolitical context of the Great War in Europe precipitated fundamental changes in the economic and agro-environmental practices of American farmers.[3] These new practices were hailed for their increased efficiency and the maximization of resources, and most Americans embraced them as the benefits of a modernizing age, not anticipating the long-term economic and ecological impacts that were the unintended consequences of these policies.[4]

Scholars have glossed over the causal forces at play in the transformation of American agriculture during this period, and yet the interplay between finance and environmental change was of paramount importance.

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[2] The most influential book on the Great Plow-Up and Dust Bowl is Donald Worster's *Dust Bowl: The Southern Plains in the 1930s* (New York, 1979). Other studies of the transformation of the Great Plains during the early twentieth century include Paul Bonnifield, *The Dust Bowl: Men, Dirt, and Depression* (Albuquerque, 1979), Geoff Cunfer, *On the Great Plains: Agriculture and Environment* (College Station, 2005), Timothy Egan, *The Worst Hard Time: The Untold Story of Those Who Survived the Great American Dust Bowl* (New York, 2006), R. Douglas Hurt, *The Dust Bowl: An Agricultural and Social History* (Chicago, 1981), and Pamela Riney-Kehrberg, *Rooted in Dust: Surviving Drought and Depression in Southwestern Kansas* (Lawrence, 1994), as well as a special edition of the *Great Plains Quarterly* dedicated to the history of the Dust Bowl, *Great Plains Quarterly* 6 (Spring 1986).

[3] Deborah Fitzgerald, in *Every Farm a Factory: The Industrial Ideal in American Agriculture* (New Haven, 2003), analyzed the transformation of American agriculture during the war. Most treatments of the WWI years ignore the developments in agriculture and finance during these years, and there is no reference at all to rural credits in Capozzola's *Uncle Sam Wants You,* Hawley's *The Great War and the Search for a Modern Order,* or Kennedy's *Over Here.* Nor did William Leuchtenburg's *The Perils of Prosperity, 1914-1932* (Chicago, 1993), or Robert H. Wiebe's *The Search for Order, 1877-1920* (New York, 1967) seek to address the impact of agricultural finance in this transformative era.

[4] Some of the most vocal contemporary opponents to this modernizing trend in agriculture, including Liberty Hyde Bailey, Ralph Borsodi, and Louis Bromfield are featured in "Agrarians in an Industrializing Nation," the fifth chapter of Edwin C. Hagenstein, Sara M. Gregg, and Brian Donahue, *American Georgics: Writings on Farming, Culture, and the Land* (New Haven, 2011).

Whereas some environmental historians have examined the environmental impacts of agriculture, they too frequently ignore the economic mechanisms through which farms have expanded.[5] Similarly, while agricultural historians have devoted a great deal of attention to the cultivation of commodity crops and the social dynamics in rural areas, they have neglected the financial networks that funded industrializing agriculture.[6] Economic historians have acknowledged the market mechanisms that encouraged agricultural expansion, but they have failed to realize the larger ecosystemic effects of these changes alongside the ways in which economic programs of one era drove the market collapse of another.[7] For their part, policy historians have paid a great deal of attention to this era of governmental expansion, but without integrating a regional context that explains the social, environmental, and economic impacts of agricultural policy.[8] This article builds upon the literature within these fields by highlighting the impact of federally subsidized lending on the rural economy and illustrating how these new farm loans played an instrumental role in reshaping the landscape of production agriculture in the twentieth century.

The 1916 Federal Farm Loan Act offered a mechanism for the reorganization of the rural economy that complemented other centralizing initiatives of the period, including the 1913 Federal Reserve Act, the 1914 Smith-Lever Act, and the 1916 Federal-Aid Road Act.[9] This legislation sought to correct inequities in the farm mortgage market and "overcome the chaos, dysfunctions, and inequities of the unfettered market by creating new capacities for administrative control within the federal government."[10] The injection of government capital facilitated the modernization of tens of thousands of farms, increased the pace of mechanization in the wheat and corn belts, and drove the capitalization of rural districts. Over eight months in 1917 the federal land banks extended almost thirty million dollars in new farm loans, injecting an infusion of credit into the rural economy that contributed materially not only to the massive gains in production during the war but also to the rapid transformation of the Great Plains and Midwest.[11]

The federal government's 1916 intervention in rural credits proved instrumental to increasing staple crop production, creating unprecedented agricultural surpluses, and paving the way for new regulatory initiatives in the

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[5] Andrew Duffin, *Plowed Under: Agriculture and Environment in the Palouse* (Seattle, 2007); Worster, *Dust Bowl.* The most notable exception is William Cronon, *Nature's Metropolis: Chicago and the Great West* (New York, 1991).
[6] Hal Barron, *Mixed Harvest: The Second Great Transformation in the Rural North, 1870-1930* (Chapel Hill, 1997); R. Douglas Hurt, *The Big Empty: The Great Plains in the Twentieth Century* (Tucson, 2011); Craig Miner, *Next Year Country: Dust to Dust in Western Kansas, 1890-1940* (Lawrence, 2006); John Opie, *The Law of the Land: Two Hundred Years of American Farmland Policy* (Lincoln, 1987).
[7] Michael Johnson Grant, *Down and Out on the Family Farm: Rural Rehabilitation on the Great Plains, 1929-1945* (Lincoln, 2002); David Hamilton, *From New Day to New Deal: American Farm Policy from Hoover to Roosevelt* (Chapel Hill, 1991); Craig Miner, *Harvesting the High Plains: John Kriss and the Business of Wheat Farming, 1920-1950* (Lawrence, 1998); Patrick Mooney, "The Political Economy of Credit in American Agriculture," *Rural Sociology* 51 (Winter 1986): 449-70; James H. Shideler, *Farm Crisis, 1919-1923* (Berkeley, 1957), 1-35;
[8] Brian Balogh, *A Government Out of Sight: The Mystery of National Authority in Nineteenth-Century America* (New York, 2009); Karl Barry, *The Uneasy State: The United States from 1915 to 1945* (Chicago, 1983); Don and Robert Paarlberg, "Agricultural Policy in the Twentieth Century," *Agricultural History* 74 (Spring 2000): 136-61; Elizabeth Sanders, *Roots of Reform: Farmers, Workers, and the American State, 1887-1917* (Chicago, 1999).
[9] For more on the place of rural credits in the agricultural program of the New Freedom, see Shideler, *Farm Crisis,* 5-9; Arthur S. Link, *Wilson: The New Freedom* (Princeton, 1956), 261-264.
[10] Hamilton, *From New Day to New Deal*, 4.
[11] Federal Farm Loan Board, *First Annual Report of the Federal Farm Loan Board* (Washington, 1918), 30.

following decades. The global increases in acreage and productivity that erupted during the war years eventually yielded too much wheat, especially after 1920 when European markets no longer demanded vast quantities of American grain. Ultimately, the new farm loan system contributed to the surpluses that emerged as the nation's principal agricultural policy dilemma after World War I.[12] The problem of surplus subsequently reshaped American food policy and agricultural politics during the challenging decades of the 1920s and 1930s and into the twenty-first century. These broader impacts merit consideration as we seek to evaluate the consequences of World War I, the postwar economic contraction, the paralyzing drought and dust storms of the 1930s, and subsequent federal interventions in the agricultural economy.[13]

Seeding a System of Rural Credits

Limited access to mortgage loans had significant repercussions in rural America, and at the turn of the twentieth century American farmers suffered from the coupled disadvantages of high interest rates and the general scarcity of rural credit. The farm press, agricultural economists, and farm leaders had long argued that national credit markets underserved farmers, which constrained them in their attempts to modernize. After the turn of the twentieth century the limited availability of credit on the Southern Plains materially restricted farmers' ability to invest in improvements. Whereas the Farmers' Alliance had mobilized to promote the interests of farmers during the 1880s and 1890s, organizing to provide new avenues for cooperative marketing and purchasing, many of these rural cooperatives had faltered on the heels of the political defeat of the People's Party.[14] As a result, farmers relied upon prosperous neighbors, large national banks, and life insurance companies to fund most farm mortgages, but for terms of only a few months to a few years, a reflection the economic interests of these investors. Because credit markets generally operated on a short term, yet farm managers required longer-term loans in order to buy new land or machinery, the sources of credit and the needs of the farmer were perpetually mismatched. As a result, loans to farmers were rarely sufficient to ensure the increases in efficiency urged by agricultural reformers.[15] Moreover,

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[12] Farmers realized a 52% reduction in real net farm income in 1921, as world grain markets adjusted to postwar conditions. American wheat exports fell by 60% between 1920 and 1923, as American farmers competed with wheat producers in Canada, Argentina, Australia, Russia, and Europe during the years after the war. Laurie Winn Carlson, *William J. Spillman and the Birth of Agricultural Economics* (Columbia, 2005), 121; Bruce Gardner, *Agriculture in the Twentieth Century: How It Flourished and What It Cost* (Cambridge, Mass., 2002), 129, 134; W. M. Jardine, "Agricultural Surplus Control," *Annals of the American Academy of Political and Social Science* 142 (March 1929): 450-53; Frederic L. Paxson, "The Agricultural Surplus: A Problem in History," *Agricultural History* 6 (April 1932): 51-68; William Winders, *The Politics of Food Supply: U. S. Agricultural Policy and the World Economy* (New Haven, 2009), 37, 39.

[13] Ultimately, in 1933 the nation embarked on a new program of agricultural payments for reduced production that has defined agriculture ever since. Hamilton, *From New Day to New Deal*; Ladd Haystead and Gilbert Fite, *The Agricultural Region of the United States* (Norman, 1955), 179, 197-98; Donald C. Horton and E. Fenton Shepard, "Federal Aid to Agriculture Since World War I," *Agricultural History* 19 (April 1945): 114-120; William E. Leuchtenburg, *Franklin D. Roosevelt and the New Deal* (New York, 1963, 2009).

[14] Lawrence Goodwyn, *The Populist Moment* (New York, 1978); Miner, *Next Year Country,* 31-42.

[15] Most insurance company loans to agriculture, for example, were extended for a period of five to seven years on a non-amortized basis—in other words, borrowers paid regular interest payments, but the principal (the amount borrowed) was due in one lump payment at the end of the term of the loan. As agricultural economist Taylor emphasized, insurance companies were well suited to investing in farm mortgages: "agents are usually men who know the local situation thoroughly…. The insurance company is in no hurry for its money, hence it prefers long-

even when mortgage credit was available, it often came at cripplingly high rates of interest. Rural lenders rarely competed for mortgages, and national credit markets found few incentives for catering to farmers' specialized borrowing needs.

<Ins. Fig. 1 here—Cover of *The Banker-Farmer,* July 1916, highlighting the difference between "Farmer Smith" and "Farmer Jones." In this cartoon the artist elaborated on the time-honored practice of comparing types of farmers, who were frequently characterized as "Farmer Snug" and "Farmer Slack." In this version, however, the artist offers a pointed commentary on how farm practices affected each operation's credit. *The Banker-Farmer* 3 (July 1916)>

Farmers, policymakers, and even rural bankers across the nation—as well as from throughout the political spectrum—agreed that some form of systemic reform was needed in order to free up capital for rural improvements.[16] During the 1910s farm journals were replete with editorials, testimonials, and proposals focused on the necessity of improving the farmer's access to capital to invest in improvements.[17] As one early historian of rural credits described the situation: "Something was plainly wrong with agriculture…. The agricultural revolution had come, cheap land was gone, farm land commanded absolute and relatively high prices, the cost of equipment had soared, and the passing from extensive to intensive farming necessitated more capital for farm operations. Credit was necessary in order to obtain capital." Yet while he path to an increasingly business-like agriculture relied on an expanded credit market, and modernizers stressed the potential for rural improvement, farm mortgages simply were not accessible to many farmers, even as reformers envisioned the social and cultural possibilities of new credit for industrializing agriculture.[18]

The nation's growing contingent of agricultural experts was quick to connect limited credit with lack of innovation, and they were foremost among the advocates for an expanded system of rural lending. Henry C. Taylor, the American founder of the discipline of agricultural economics, argued in an early edition of his textbook, "*Farm credit is essential to good agriculture.*" Yet Taylor observed that bankers in rural communities generally only extended short-term loans suitable for merchants and manufacturers that were incompatible with farmers' longer-

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time loans." Henry C. Taylor, "Farm Credit and the Rate of Interest," in *Agricultural Economics* (New York, 1920), 180; Testimony of Jacob Badsky, Lawrence, to the Federal Farm Loan Board, Topeka, Kans., 18 September 1916, p. 101. RG 103, 530: 54/10-11/00, Entry 4, Federal Farm Loan Board: Minutes of Hearings, 1916. NARA, College Park; George Putnam, "Farm Credit in Kansas," *American Economic Review* 5 (March 1915), 27.

[16] A variety of ideas had been circulating in rural America, and in 1909, the U. S. Country Life Commission had included in its report to Congress a recommendation for a system of cooperative credit that would privilege rural and agricultural borrowers, who had long funded mortgages in towns with their own savings deposits. *Report of the Country Life Commission: special message from the President of the United States transmitting the report of the Country Life Commission* (Washington, 1909), 58.

[17] Of the hundreds of editorials, letters to the editor, and reports on the credit system, a sampling suffices to survey the political and economic landscape. Editorial, "Rural Credits and the Banker," *Banker-Farmer* 3 (May 1916): 8; Editorial Comment, "The Problem of Credit," *Successful Farming* 15 (July 1914): 1; "Credit for Farmers," *Wallace's Farmer* (5 September 1914), 1203.

[18] Arthur Francis Pottle, "A History of the Federal Farm Loan Act," MS Thesis, Iowa State College, 1928, 6-7; Joseph G. Knapp, *The Rise of American Cooperative Enterprise, 1620-1920* (Danville, Ill., 1969).

term credit needs. Consequently, he concluded, "the bank is too rarely a farmers' credit institution."[19] The paucity of long-term loans at competitive rates meant that capital for the improvements to farm buildings, livestock, machinery, and crops urged by the land grant colleges was inaccessible for many farmers. This disparity impeded farmers from adopting the economies of scale, modern machines, and new practices that Taylor and other experts argued were crucial for securing a resilient and productive agricultural sector.

The Politics of Rural Credit

By 1912 the calls for a new approach to rural credit had reached the highest levels of government, and the national party platforms of the Republican, Democratic, and Progressive parties all included a call for investigating new methods for improving rural credit.[20] Reflecting this growing consensus, in the spring of 1913 Congress authorized the appointment of the U. S. Commission and charged it with investigating the necessity for a system to improve rural access to credit. The Commission's 1913 report cited jarringly high rates of interest on farm mortgages, and noted significant regional variation that had a profound impact on agricultural production.[21] Farmers in the Deep South, the Great Plains, and the Pacific Northwest operated at a particular disadvantage: rural interest rates averaged 10% in Montana and Wyoming; 9.6% in Arkansas and Florida; 9% in Utah and Texas; 8.9% in Colorado and Idaho; 8.7% in Georgia, North Dakota, and Washington; meanwhile, rates ranged between 8 and 8.6% in Louisiana, Mississippi, Oklahoma, South Carolina, South Dakota, and Oregon.[22] The going rate for business loans in New York City, by contrast, was 4.5%, and the new Federal Reserve was extending government credit to regional banks at 3%.[23] The cost to farmers was debilitating, and the *Wall Street Journal* estimated in 1913 that the nation's twelve million farmers, who had a gross income of $5.8 billion, were paying an estimated $510 million a year in interest on borrowed capital.[24] Farmers were often paying interest rates twice those of urban businessmen, and there was too little capital available for fully modernizing their operations. Even President Woodrow Wilson,

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[19] Taylor, "Farm Credit and the Rate of Interest," 178-79.

[20] The Democrats simply supported the deployment of the investigatory U. S. Commission to Europe, which had been charged with researching European cooperative credit systems like the French Crédit Agricole and the German Raiffeisen. The Progressive platform pledged "to foster the development of agricultural credit and co-operation" and the Republicans recommended "the passage of State and Federal laws for the establishment and capable supervision of organizations having for their purpose the loaning of funds to farmers." "Democratic Party Platform of 1912," 25 June 1912, *The American Presidency Project,* http://www.presidency.ucsb.edu/ws/index.php?pid=29590 (accessed 25 September 2012); "Progressive Party Platform of 1912," 5 November 1912, *The American Presidency Project*, "Republican Party Platform of 1912,"18 June 1912, *The American Presidency Project*, http://www.presidency.ucsb.edu/ws/index.php?pid=29617 (accessed 25 September 2012); http://www.presidency.ucsb.edu/ws/print.php?pid=29633 (accessed 25 September 2012); Arthur S. Link, *Woodrow Wilson and the Progressive Era, 1910-1917* (New York, 1954), 57; R. C. Milliken, "A Rural Credit System," *Banker-Farmer* (November 1914), 10.

[21] Institute for Government Research, *The Federal Farm Loan Bureau: Its History, Activities, and Organization* Service Monographs of the United States Government No. 34 (Baltimore, 1924)*,* 7.

[22] Herbert Quick, "The Rural Credit Firing Squad," *Saturday Evening Post* (April 15, 1916), p. 30, figures cited Link, *Wilson: The New Freedom,* 261.

[23] "Controller Urges Remedy for Usury," *New York Times,* 11 January 1916, p. 4.

[24] The *Journal* calculated this sum at an average interest rate of 8 ½ %. "High Rural Interest Rates," *Wall Street Journal,* 1 January 1913, p. 6. Figure for gross agricultural income in 1913 comes from Willford I. King et al., *Income in the United States, Its Amount and Distribution, 1909-1919* (New York: National Bureau of Economic Research, 1921), 18-19.

the resolute defender of the principle of "special privileges to none," readily acknowledged the damage inadequate credit markets did to rural Americans, and sought a solution that might allow the nation might correct for this disparity.[25]

Politicians in Congress recognized the need to channel long-term credit to farmers more efficiently and cheaply, and yet they contested vigorously which mechanisms for achieving this market readjustment were most consistent with American values. Farm leaders wanted a system of rural credit organized, underwritten, and administered by the federal government. The agrarians in Congress proposed that federal investment in the lending marketplace would create a more equitable system, insulated from the extortionate rates of commercial lenders, which could be used to guarantee farmers low interest rates on long-term mortgages. At first, President Wilson rejected this program, arguing that it clashed with the concept of a "New Freedom" that lay at the heart of his political philosophy.[26]

The gulf between the proposals dominating Congress and the political philosophy within the Wilson White House was vast. President Wilson sought to govern according to his "very deep conviction that it is unwise and unjustifiable to extend the credit of the Government to a single class of the community." Secretary of Agriculture David Houston further clarified the administration's position on rural credits in a speech to the National Grange: "I am not impressed with the wisdom and the justice of proposals that would take the money of all the people, through bonds or other devices, and lend it to the farmers or to any other class at a rate of interest lower than the economic conditions would normally require and lower than that at which other classes are securing their capital. This would be special legislation of a particularly odious type." Instead, Wilson, Houston, and a range of fiscal conservatives championed an alternative program for improving rural credit: a voluntary, cooperative system that was wholly financed by private interests, designed to serve those farmers who were best positioned to improve their operations.[27]

As often transpires in election years, however, political considerations forced Wilson to reconsider his stance on rural credits during 1916. The Midwestern farmers who were most outspoken in their support for a system of government finance represented a voting bloc critical for securing Wilson's reelection. For example, Frank Odell of Omaha, Nebraska, the Secretary of the American Rural Credits Association, gave a well-publicized speech in January 1916 in New York City that warned: "If the Democratic Party fails to give suitable legislation on the subject it will hurt itself greatly with the farmers, especially in the Middle West." Odell predicted that this would arise as a critical issue in the coming election season, suggesting that Democrats cultivate the farm vote in order to

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[25] Echoing William Jennings Bryan in 1913, Wilson observed, "It is from the quiet interspaces of the open valleys and the free hillsides that we draw the sources of life and prosperity, from the farms and the ranch, from the forest and the mine. Without these every street would be silent, every office deserted, every factory fallen to disrepair. And yet, the farmer does not stand on the same footing with the forester and miner in the market for credit." Josephus Daniels, *The Wilson Era: Years of Peace* (Chapel Hill, 1944), 233.
[26] Link, *Wilson*: *The New Freedom*, 261.
[27] Link, *Wilson: The New Freedom*, 262-63.

"offset the pro-German vote which will be solidly Republican."[28] The war in Europe influenced the economic as well as the political scene, and provided the rationale for Wilson to revise his position on government intervention in the rural credit market.

Throughout 1916, reminders about the urgency of reorganizing rural finance circulated in Congress and in the national press. In January, the Comptroller of the Currency reported to Congress on the often-usurious interest rates offered by rural banks, exposing rates reaching as high as 20-1000%. The *New York Times* summarized the report: "The most excessive interest rates are being charged by the small banks in rural communities. Especially in the South and Southwest, the West and the Northwest many bitter complaints have been received of excessive interest charged the farmers and others engaged in agriculture. In many instances the exactions of the money lenders make it impossible for the farmer to live comfortably and pay the banks the enormous rates demanded for the use of the money needed to produce his crops."[29] These loans were repeatedly rolled over and refinanced, thus perpetually limiting the capital of aspiring farmer-businessmen. The clear implication was that the diffuse populations and limited resources of the underdeveloped parts of the country were holding farmers—and the nation—back.

<Ins fig. 2 here, Average rates for farm interest and commissions, July 1916, featuring the highly variable interest rates and rates of annual commission by state. From Thompson, "Costs and Sources of Farm-Mortgage Loans," 9>

The agrarian myth remained strong in popular culture, and farmers were celebrated in the halls of Congress and the popular press for their contributions to national prosperity, their diligence, and their thrift. Yet all too often the markets that depended on the productivity of individual farms did not align with the rural producer's own economic interests. The Comptroller of the Currency's 1916 report stressed that "the farmer has been and is obliged to pay, in thousands of cases, not only twice the rate of interest usually charged in the cities to merchants and manufacturers, where the risk is just as great, but he actually has been required to pay, in many instances, three, four, five, and in some instances ten times the interest rate which he ought to be charged or which is permissible under the law." Usurious practices included a thirty-day loan of $110 to a woman homesteader at a rate of 120% and the thousand loans made by a Texas bank at rates between 20-100%, even though, as the report surmised, "the funds [came] presumably from the emergency currency which the Government loaned to the bank at 3 per cent."[30] Urban newspapers joined the chorus, publishing articles highlighting the financial vulnerability of market-oriented farmers and reporting regularly on the negotiations in Washington over the terms of new rural credits legislation.

Awareness of the need to change the operation of rural credit markets extended into the banking community, and even commercial bankers acknowledged the financial disadvantages that accompanied the farm mortgage market. Farm editor Herbert Quick penned an article in the *Banker-Farmer* suggesting "the business of

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[28] "See in Rural Credit a Big National Issue, Western Farmers Put Loans Next to Preparedness in National Contest," *New York Times,* 10 January 1916, p. 6; another enumeration of high rates by state comes in Robert J. Bulkley, "The Federal Farm-Loan Act," *Journal of Political Economy* 25 (February 1917), 130, which cites C. W. Thompson, "Costs and Sources of Farm-Mortgage Loans in the United States," USDA Bulletin No. 384 (Washington, 1916).
[29] "Controller Urges Remedy for Usury," *New York Times*, 11 January 1916, p. 4.
[30] "Controller Urges Remedy for Usury," 4.

the country bank is hampered and disturbed by the lack of money in the community at low rates of interest to supply the long time needs of the farmer." Quick cited a country banker who explained the value of government-seeded loans to the larger economy: "Our farmers are in need of money in larger amounts than we can furnish and on long-time amortized loans which we can not make, in order that they may change their type of farming to a safer and more permanent agricultural basis." The consequences of an infusion of capital were clear: as the farmer takes a long-term amortized loan he becomes "financially emancipated" and is able to invest in his farm, expand, and diversify, thus driving the economic development of his community. Moreover, with a long-term mortgage, the farmer "is not anxious because of the mortgage which falls due in two or three years. He can plan for development… He will venture into developments which he would not dare undertake while facing a rapidly maturing mortgage…. This will make the farmer's business in the bank better than before and make him a more desirable customer."[31] Quick was speaking directly to the nation's bankers through the publication of the American Banker's Association's Agricultural Commission, and assuring those who feared government-seeded competition that they would find more benefit than harm from federal intervention in the rural credit system.

During several sessions of debates over proposals to improve rural access to credit, Congress resolved to create more competition in the lending market, recognizing that high interest rates in farming areas were a pressing concern for both farmers and the nation at large. Robert J. Bulkley (D-OH), one of the original co-sponsors of the Federal Farm Loan Act, wrote, "It is a problem in which the nation is even more vitally interested than the farmer himself, for availability of funds at reasonable rates is encouragement to the farmer to improve his lands and so increase his yield of foods." Bulkley enumerated the advantages of increased production, arguing that the improvement of farm operations "interests and benefits us all, for it is certain to increase our national agricultural productiveness."[32] Members of Congress recognized that agricultural production was not generally a matter of significant public attention, unless a dramatic weather event such as drought or flooding affected commodity markets. Yet during World War I new exigencies emerged as the United States committed to sending food to Europe and developing overseas markets, and rural credits became a key element of the American war effort.

Rural Credit for the Wartime Farmer

The wartime emergency, coupled with Wilson's growing concern about securing the farm vote, precipitated rapid progress in the negotiations over the terms of a farm finance law. The political logjam over competing versions of the rural credits legislation was broken in late January 1916 when Senator Henry Hollis (D-NH) and Representative A. F. Lever (D-SC), both long-time advocates of reforming rural credit, traveled to the White House. The purpose of their visit was to appeal for the President's support of federal investment in farm loan bonds. Reflecting the press attention given to Odell's New York speech, and abrogating on his earlier insistence on "special privileges to none" in an abrupt about-face that thrilled his guests, Wilson encouraged the legislators to return to

[31] Herbert Quick, "Bankers and the Farm Loan Act—As Seen by One of Uncle Sam's Board," *Banker-Farmer: Reviewing the Banker's Activities for a Better Agriculture and Rural Life* 4 (April 1917): 14, 15.
[32] Bulkley blended the benefits of efficient production with agricultural conservation in his argument for rural credit reform, arguing that a long-term mortgage provides the farmer with "a satisfactory sense of permanence in his land ownership and makes him the most interested and diligent conservator of his soil." Bulkley, "Federal Farm-Loan Act," 131.

Capitol Hill and increase the amount of federal investment in the proposed land banks. In effect, Wilson signaled his support for a rural credits law during this meeting after four long years of principled opposition.[33]

Congress moved to reinvent the farm mortgage system in the following months, sending a compromise bill down Pennsylvania Avenue in mid-May. Two months later, on 17 July, President Woodrow Wilson addressed an audience of farm state legislators and rural editors as he signed the Federal Farm Loan Act. Wilson observed, "The farmers, it seems to me, have occupied hitherto a singular position of disadvantage. They have not had the same freedom to get credit on their real estate that others have had who were in manufacturing and commercial enterprises, and while they have sustained our life, they did not in the same degree with some others share in the benefits of that life."[34] The President recognized the transformative nature of this law for the nation's rural economy, even as he anticipated that his political future, as well as the American role in the growing international crisis, would likely rest on the votes of the farmers for whom the law had been drafted. That November, the farmers of the Deep South and most of the West returned their votes for the Wilson, just as the new federal farm loan system was beginning to organize. The political exigencies of the election year and world war led to the establishment of a network of lending institutions that, in modified form, continues to support commercial agriculture well into the twenty-first century.

<Ins fig. 3 here. Photograph featuring President Woodrow Wilson and the major proponents of the Federal Farm Loan Act, upon the signing of the law, 17 July 1916.>

The Federal Farm Loan Act, entitled *"An Act To provide capital for agricultural development, to create standard forms of investment based upon farm mortgage, to equalize rates of interest upon farm loans, to furnish a market for United States bonds, to create Government depositories and financial agents for the United States, and for other purposes,"* was part of a suite of legislation designed to benefit farm and rural interests that the 64th Congress passed during the summer of 1916. This program to promote agricultural production, marketing, transportation, and what historian James Malin called the "Agriculture Code," also featured the Federal-Aid Road Act, which established a Bureau of Public Roads in the U. S. Department of Agriculture with funds to assist states in building highways—the farm-to-market roads that became increasingly vital to rural communities. Later in the summer, Congress passed the Warehouse Act, codifying a part of the Farmers' Alliance subtreasury plan that permitted bonded warehouses to issue receipts against agricultural commodities to be used as collateral for loans from national banks. This law was crafted to allow farmers to bank their crops until optimal prices could be realized from their produce.[35] In combination with new low-interest-rate mortgages, these programs for rural producers had a significant influence on strengthening the hand of the farmer in national markets during the wartime boom.

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[33] Arthur S. Link, *Wilson: Confusions and Crises, 1915-1916* (Princeton, 1964), 225-26.
[34] "President Signs Rural Credits Bill, Declares Measure is One of Delayed Justice," *New York Times*, 18 July 1916, p. 5.
[35] James C. Malin, *The United States after the World War* (Boston, 1930), 227-47; Link, *Wilson: Confusion and Crises,* 350.

Alongside the other agricultural legislation of 1916, the Federal Farm Loan Act was designed to serve the commercial farmer, and its implementation was timed auspiciously to increase the wartime production of commodity crops. The legislation provided a mechanism for blending government credit with private investment and distributing funds to worthy borrowers. Its structure was reminiscent of the 1913 Federal Reserve Act, as the nation was divided into twelve districts, each served by a regional land bank that each represented a cross-section the nation's diverse agricultural regions. The U. S. Treasury invested $750,000 in start-up capital for each district, with Congress stipulating that the remainder of the funds to be subscribed by rural borrowers through their purchase of the stock of new entities termed national farm loan associations. In keeping with the terms of the legislation, President Wilson appointed a Federal Farm Loan Board to organize and oversee the national system of land banks, and within weeks, it was at work coordinating the creation of a new system of rural credit in the United States.[36]

These government-seeded loans represented both a new source of credit and a competitor to the life insurance companies and banks that had historically controlled most farm mortgages. The amortization provision proved one of the most a revolutionary components of the legislation: farmers were suddenly allowed to pay down the interest and principal in annual or semiannual installments, rather than regular interest payments and then the full payment of the principal at the end of the loan term. In the past, farmers would take out a loan of $1000 for three years, paying interest only once or twice a year, with the principal balance of $1000 due at the end of the loan term. Often, that sum was difficult to reserve, and as a result, the farmer had to take a new mortgage, with new fees and commissions, and, consequently reassume all of the risk of the loan. By contrast, an amortized loan of $10,000 over the course of thirty-five years would be paid off at a series of regular installments that composed both principal and interest, drawing down the total debt at a regular rate until it was paid in full at the end of the thirty-five years. Amortization exercised a significant effect: the farmer-businessman would no longer suffer the consequences of earning a low rate of return in his savings at local banks, while he was liable for mortgage debts that were due at a rate that was at least 2-5% higher.[37]

<Insert fig. 4 here. Amortization table for a simple five-year loan, illustrating the principle of regular, consistent payments. From Federal Farm Loan Bureau, "Killing off Mortgages," 6.>

The 1917 Federal Farm Loan Bureau publication "Killing off Mortgages" offered an elaborate description of the value of amortization, along with a series of tables that clarified the process of the process for farmers. Using a straightforward framing of the concept, the pamphlet spoke directly to farmers:

> There is a word—a long word—which used to be very unusual, but which is becoming common now, and with which every farmer out to become familiar. This word is 'amortization.'… What is 'amortization'

[36] "As had been generally expected the public subscriptions were almost negligible, and of the total capital of the twelve banks amounting to $9,000,000, the United States supplied $8,891,270." Institute for Government Research, *Federal Farm Loan Bureau,* 12, 27-28.
[37] Federal Farm Loan Bureau, "Killing off Mortgages: A Description of the Methods of Amortization and Their Benefits to Borrowers," circular no. 7 (Washington, 1917, 1920), 4-5; Taylor, *Agricultural Economics*, 180-81; Testimony of O. W. Dawson, farmer and loan broker, Great Bend, before the Farm Loan Board, Hutchinson, Kans., 19 September 1916, p. 69. RG 103, 530: 54/10-11/00, Entry 4, Federal Farm Loan Board: Minutes of Hearings, 1916. NARA, College Park.

> and what is there in it for a farmer? The word 'amortization' is a cousin of a number of other words in the English language. When a wound or a disease brings death we call it 'mortal.'… Insurance companies use what are called 'mortality' tables, which show the percentages of certain classes of people to die within certain periods of time. All these words are derived from the latin word 'mors,' which means 'death.' To 'amortize' a mortgage, therefore, is to put it to death. The 'amortization' of a mortgage means, literally, killing off the mortgage. Almost every farmer, therefore, must be interested in any system based upon the principle, first, of making it possible for farmers to get into debt on an economical and even a profitable basis, and at the same time of killing the mortgage off or getting out of debt by amortization.[38]

Amortization, therefore, not only strengthened the farmers' hand as he sought to weather erratic crop prices, weather, and uncertain markets, but it provided a predictable, even, and cumulative method of paying off debt. This benefit was transformative, and it reordered the agricultural landscape two decades before amortization began to be adapted regularly in home mortgages under the New Deal Home Owners Loan Corporation in 1933.

The proponents of the Federal Farm Loan Act aspired to equalize the lending landscape by subsidizing the creation of a system of mortgage credit in rural districts with federal start-up money and an amortized mechanism for distributing long-term loans to American farmers. The key ambitions behind the law were increasing productivity, expanding land ownership, improving efficiency, and bolstering economic development. The federal financing of the system was intended to be temporary and Secretary of the Treasury William McAdoo emphasized that federal seed money was intended to stimulate investment, rather provide permanent capital for the federal land banks. McAdoo stressed, "This is not a government bank. The government is advancing this capital and inaugurating this system to give the farmers an opportunity to work out their own salvation and under their own conditions…."[39] These federal funds provided the start-up capital for farmers low-interest-rate, long-term, amortized credit. The federal land banks invested nearly thirty million dollars in new mortgages during their first eight months in operation, directly stimulating the rural economy and changing the structure of agriculture in significant ways. The timing of these loans was crucial for increasing global trade, as the Great War was wreaking havoc on the agricultural regions of Europe and grave food shortages threatened the continent, creating extensive new market opportunities for American producers.[40]

Managing Rural Credits

Congress designed the Federal Farm Loan Act to be administered by a governing board with expertise in farm economics. The appointees to the Farm Loan Board had long experience with rural finance: Charles E. Lobdell was a lawyer and banker from Great Bend, Kans.; George W. Norris had worked as an investment banker and director of the Federal Reserve from Philadelphia, Pa.; William S. A. Smith, of Sioux City, Iowa, was a former farmer and expert at the USDA; and Herbert Quick, editor of the farm journal *Farm and Fireside*, was a native

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[38] Federal Farm Loan Bureau, "Killing off Mortgages," 3.

[39] Statement of Secretary of the Treasury William G. McAdoo, hearing of the Farm Loan Board, Hutchinson, Kans., 183.

[40] Whereas Europeans harvested 37 million metric tons of wheat in the early 1910s, by 1919 their production had dropped by 11 million metric tons, and European exports had been cut off. A terrible grain shortage thus confronted Europe. Duffin, *Plowed Under*, 55-56.

Iowan living in Berkeley Springs, W. Va..[41] The legislation delegated to these financiers and agricultural experts the responsibility for directing the operations of the land banks, and the Board convened for the first time in August 1916. At this meeting—a mere three weeks after the President signed the rural credits law—the Board encountered a pile of mail comprised of "thousands of letters and other communications which had been accumulating in the Treasury Department, the Department of Agriculture, the White House, and various other bureaus and departments, including even the Bureau of the Census and the Congressional Library."[42] Interest in the rural credit initiative was high, and by November the Farm Loan Board had received over 200,000 letters and telegrams requesting information about the federal land banks.[43]

There were a wide range of administrative tasks associated with crafting a new network of land banks funded by this unprecedented combination of government and private capital. During the fall of 1916 the Farm Loan Board mapped land bank districts (see Figure 5 for the map of land bank locations), appointed directors for each land bank, and approved the creation of national farm loan associations; in the process facilitating the distribution of money throughout the country that began in the spring of 1917.[44] Over the course of a few short months the Farm Loan Board coaxed into operation an equitable, functional, and practical system of distributing credit to farmers across the country. A central impetus for the structure of the land banks was the information gathered as the Board toured the nation during the late summer and fall of 1916. Seeking "to ascertain the feelings of farmers and business men toward the new system of farm loans," the Board conducted fifty-three public hearings to survey the rural credit situation.[45] Rural credit markets were highly variable, and testimony before the Board indicated that rates of interest ranged from 5% to 60% per annum, and that rates were extremely variable; in some communities at 5% per year, and in other communities at 5% per month.[46] With variation as extreme as this, the proponents of a more equitable system of rural finance saw great opportunities for improving the agricultural economy, and strengthening rural areas as well as the nation's production capacity.

[41] Quick was a native Iowan living in West Virginia. "President Names Farm Loan Board, Banker, Economist, Farmer, and Rural Credits Student to Solve Big Problems," *New York Times,* 28 July 1916, p. 6.
[42] Federal Farm Loan Board, *First Annual Report of the Federal Farm Loan Board* (Washington, 1918), 5.
[43] "Farm Loan Board at Work," *New York Times,* 28 November 1916, p. 8.
[44] *S. Doc. No. 500,* 64 Cong. 1 Sess. "The Federal Farm Loan Act, An Act 'To provide capital for agricultural development, to create a standard form of investment based upon farm mortgage, to equalize rates of interest upon farm loans, to furnish a market for United States bonds, to create Government depositories and financial agents for the United States, and for other purposes,'" approved 17 July 1916 (Washington, 1916).
[45] Federal Farm Loan Board, *First Annual Report,* 5. Stenographer's minutes were kept for forty-two hearings, in thirty-eight states. The Board held two hearings in Kansas and Iowa, and three in Texas, but none in the least agricultural and smallest states, including Delaware, Georgia, Idaho, Nevada, New Hampshire, New Mexico, Rhode Island, South Dakota, and Vermont. RG 103, 530: 54/10-11/00, Entry 4, Federal Farm Loan Board: Minutes of Hearings, 1916, boxes 1-5. NARA, College Park.
[46] Moreover, many loans with rates of 5-6% had commissions ranging from 1-2% to 1-3% per annum. So over the term of a five-year mortgage, a commission of 3% per annum amounted to 15% of the principal sum borrowed, an amount that was deducted when the loan was effected, which meant that the borrower received only 85% of the principal and yet paid at the rate of 6% per annum on the full amount of the loan, in addition to paying for abstract, legal, and recording fees.

<Ins Fig 5: Federal Farm Loan Board, "Map of the Federal Land Bank districts," 1917. *First Annual Report of the Federal Farm Loan Board* (Washington, 1918), 10.>

The organization of the farm loan system was simple by design (See Figure 6). Federal investment in the land banks provided essential start-up capital of up to $750,000 per bank, and Congress intended that these funds would be supplemented and eventually replaced by subscriptions from members of the National Farm Loan Associations (NFLAs) who wanted to invest in and borrow from this new system of cooperative rural credit.[47] The individual NFLAs were charged with extending amortized loans for terms of between five and forty years to those farmers in their community they judged to be worthy credit risks. These cooperative credit associations could be organized by a group of at least ten owner-borrowers who "own and cultivate farm land." Each participant in an NFLA was required to invest at least 5% of their desired loan amount in the association's stock as a means of providing security for his own loans, and the local associations were responsible for evaluating individual applications for loans.[48] Loan applications were then sent to the twelve regional land banks for a second level of review of each prospective borrower's farm and mortgage security; the Farm Loan Board-appointed directors of the regional land banks were ultimately charged with determining the viability of the loans.[49] Farmers who invested in the farm loan system had the option of refinancing their high-interest-rate mortgages, or investing in new labor saving machinery, buying new land or livestock, or improving their existing infrastructure. The possibilities, especially in the under-capitalized sections of the country, were seemingly endless.[50]

<Ins Figure 6: This graphic charts the operation of the farm loan system, demonstrating how each farmer-borrower participates as a member of the organization. From Herbert Myrick, *The Federal Farm Loan System: New Method of Farm Mortgage Finance, Under National Supervision* (New York, 1920), frontispiece.>

The Farm Loan Board's investigation of rural credit conditions had reinforced the sense that there were ample opportunities to expand access to mortgage loans in many sections of the country. In late September 1916, the Board released a statement explaining that most farmers were poorly served by existing credit markets. "In

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[47] The Secretary of the Treasury emphasized, "This is not a government bank. The government is advancing this capital and inaugurating this system to give the farmers an opportunity to work out their own salvation and under their own conditions…." Statement of Secretary of the Treasury William G. McAdoo, at the hearing of the Farm Loan Board, Hutchinson, Kans., 183.

[48] Institute for Government Research, *The Federal Farm Loan Bureau,* 16.

[49] Farmers could borrow between $100 and $10,000, with the loan totaling no more than 50% of the value of the land, plus 20% of the value of improvements. "Federal Farm Loan Act"; R. L. Badl, "Agriculturalists Shun New Farm Loan Banks, Reports from All Over Country Show Complicated Piece of Federal Legislation Isn't Proving Attractive and Old Means of Financing are Still Used—Resume of the Act's Provisions," *Los Angeles Times,* 19 February 1917, p. 1.

[50] The terms of the law stipulated that "Loans may be made (*a*) to provide for the purchase of land for agricultural uses; (*b*) to provide for the purchase of equipment ['improvements needed in the conduct of a farm to facilitate its operation, including teams as well as machinery, tools, and the like'], fertilizers, and live stock necessary for the proper and reasonable operation of the mortgaged farm; (*c*) to provide buildings and for the improvement ['anything in the form of a beneficial structure, or any useful permanent physical change tending to increase the productive value, such as clearing, tiling, draining, fencing, buildings, etc.'] of farm lands; and (*d*) to liquidate indebtedness." Federal Farm Loan Board, *First Annual Report,* 15.

every State visited… even the industrious farmer of modest means who had only a small farm… was unable to get farm credit on any terms." These credit conditions reflected not only the limited numbers of rural banks that served farming communities, but also a problem of scale: small farmers and those with limited capital were squeezed the most by insufficient rural credit. The Farm Loan Board concluded that its "investigation showed a widespread and imperative necessity for the long-time amortization loans at reasonable rates of interest, (not to exceed 6 per cent.,) provided for by the Farm Loan act," arguing that an expanded system of rural credits would "greatly stimulate agricultural development, increase farm ownerships, discourage the growing evil of farm tenantry… increase farm productivity and enhance the prosperity of the farmer, and thereby the general prosperity throughout the country." In sum, the Board assured the American public that the new system of rural credits would further the cause of rural reform.[51]

As part of its program to extend the influence of the new banks as widely as possible, the Farm Loan Board also began an educational campaign to raise public awareness of rural credit conditions and to promote the federal land banks and the creation of new NFLAs. The advocates for the land banks worked diligently to promote the benefits of investing in government-seeded loans, and the Federal Farm Loan Board produced over two million pamphlets that were distributed widely during its first years of operation. "Killing off Mortgages," "Financing the Farmer," "How Farmers May Form a National Farm Loan Association," and "New Mortgages for Old" sought to educate American farmers about the opportunities available for simplifying their financing provided by the Federal Farm Loan Act.[52]

<Ins. Figures 7 A and B, "New Mortgages for Old" cover and page 1. Some of the Federal Farm Loan Board's publications took a narrative approach to promoting the new federal land banks. Federal Farm Loan Board, "New Mortgages for Old" (Washington, 1916)>

Newspaper coverage echoed and adapted these promotional materials, and a 1917 *New York Times* article cited Federal Farm Loan Commissioner George W. Norris as he "rejoiced" in the increases in production that would accompany cheap credit, arguing that the new law "will enable thousands of small farmers to get loans at a low rate and on easy terms who would not have been able to borrow at all under previous conditions." Norris predicted a reorientation of the rural economy, as "The obtaining of long-time loans will emancipate the borrowers from their economic thralldom to the supply merchant and the local banker and permit them to do safe and diversified farming."[53] As wartime exigencies demanded the increased production of wheat and other commodity crops, the federal land banks were positioned ideally to inject much-needed capital into the rural economy and to support the improvement of American farms.

Credit on the High Plains: The Federal Land Bank of Wichita

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[51] "Loan Board Found Need of Farm Banks. Members Tell of Conditions Now Existing in New England and the West. Interest Rates Amazing," *New York Times,* 29 September 1916, p. 15.
[52] Institute for Government Research, *The Federal Farm Loan Bureau,* 28-29.
[53] "South Sets Record in Food Production," *New York Times,* 18 October 1917, p. 18.

In the face of two years of extremely poor wheat yields throughout much of the nation, and the growing demand for grain in Europe, the Farm Loan Board was especially concerned with examining local lending practices on the Great Plains.[54] Keen to assess the attitudes of commercial farmers, and to promote local enthusiasm for the system, the Board conducted a series of fifty-three hearings across forty-four states. Kansas farmers had two opportunities to interact with the Farm Loan Commissioners, in the northeastern capitol of Topeka and south-central Hutchinson on 18 and 19 September 1916. At the Topeka hearing, E. C. Johnson, the director of agricultural extension work at the Kansas State Agricultural College, offered an overview of both the condition of agriculture and the mortgage situation in Kansas. Johnson reported that as of 1915, Kansans owed approximately $180 million in outstanding farm mortgages.[55] Johnson cited USDA figures reporting that the average interest rate in Kansas was 6.9% including commission, and yet he acknowledged that rates ranged significantly within the state, with 8.8% typical in western counties, and between 6.3 and 7% more characteristic of eastern and central parts of the state. Director of Agricultural Extension Johnson explained that these variable interest rates were attributable primarily to annual rainfall: western Kansas, characterized by cycles of decent precipitation and high production followed by years with insufficient rain, represented an unstable investment.[56]

<Ins. Figure 8: Outline map of the major bioregions in Kansas. The High Plains suffered the most from inadequate credit markets. Schoewe, "Map of the High Plains, Physiographic regions and subregions of Kansas," 1949. Found in "Geologic History of Kansas," www.kgs.ku.edu/Publications/Bulletins/162/04_uncomf.html (accessed 15 September 2014)>

In Kansas and elsewhere, local credit markets reflected both ecological and market vulnerability. The inconsistency of yields in western Kansas (see Figure 8), as well as the rest of the High Plains, meant that returns on investment were erratic and cyclical, and consequently the life insurance companies and commercial banks that had long funded most of the nation's institutional mortgages had bypassed the region almost entirely.[57] In this case, climatic variability, compounded by undercapitalization and the limited number of urban centers, meant that the region was starved for credit. In 1915 University of Kansas economist George Putnam chronicled the challenges of farm finance in western Kansas, explaining:

[54] The Farm Loan Board visited forty-four states, only conducting more than one hearing in Kansas, Iowa, and Texas. Federal Farm Loan Board, *First Annual Report*, 5.
[55] Putnam, by contrast, reported that by the end of 1913, life insurance companies had a total investment of $56.5 million in Kansas, about 80% of the total mortgage indebtedness reported for Kansas farms in the 1910 U.S. census. Dr. E. C. Johnson, director of extension work of the Kansas State Agricultural College cited a USDA bulletin, issued 31 July 1915, "which gives the average mortgage indebtedness of practically all states in the union and also the rates of interest." Putnam, "Farm Credit in Kansas," 35; Testimony of Dr. C. E. Johnson at hearing of the Federal Farm Loan Board, Topeka, Kans., 18 September 1916, p. 5. RG 103, 530: 54/10-11/00, Entry 4, Federal Farm Loan Board: Minutes of Hearings, 1916. NARA, College Park.
[56] Testimony of Dr. E. C. Johnson, director of extension work of the Kansas State Agricultural College, at hearing of the Federal Farm Loan Board, Topeka, Kans., 6.
[57] Thompson explained: "The semiarid regions of the Western States do not attract capital as freely as the farming sections farther east, where rain is relatively abundant. Important sources of capital, including insurance companies and savings banks, often refuse to loan money on farm-mortgage security where the average rainfall is below a certain figure." Putnam, "Farm Credit in Kansas," 34; Thompson, "Costs and Sources of Farm-Mortgage Loans," 13-14.

> Land values are speculative chiefly because of the uncertainty of the wheat crop. In several counties fully 90 per cent of the total improved farm acreage is devoted to the production of wheat. When good years follow in succession, settlers are attracted in large numbers and land sells at a high figure. When drought follows drought, land values decline and there is a material diminution in the number of operated farms… and the uncertainty arising from the possibility of a crop failure is reflected in the current rate of interest.[58]

Even when credit could be procured from local lenders, interest rates were high, and Putnam explained, "The highest rate reported by western bankers is 10 per cent," but once additional charges were calculated into the total, "the actual rate is frequently usurious."[59] Statewide, Putnam reported that 35% of Kansas farmers were satisfied with interest rates, while another 57% found that rates were too high for profitable farming. Discontent was most pronounced in the western counties of Kansas, where "4 out of every 5 farmers expressed complete dissatisfaction with the rate of interest they have to pay," pledging that they would "try anything which offered the prospect of lower rates."[60] Testimony before the Farm Loan Board echoed these figures. E. E. Frizell, a farmer and lender from near Great Bend, Kans., described the region's need for increased credit to fund modernization: "Our farms are quite large. We need more buildings and improvements, more diversified farming." Frizell argued that the key to increased production was low-interest-rate loans for buying new grazing land to convert to crops, support mechanization, and to permit the consolidation of farms. Frizell concluded, "If we had a 6 per cent rate in the western third of the state, there would be a wonderful development immediately." Economists and farmers concurred that an increase in lending in conjunction with lower interest rates would benefit the western farmer, alongside those bankers and other businessmen who sought to develop the country.[61]

During the war years High Plains farmers were keen to increase production, and they felt an increased urgency to put more land into wheat, anticipating that continued high prices would enable them to finance expanded farm operations.[62] Between 1910 and 1920 investments in farm mortgages more than doubled nationwide, paving the way for the increasing capitalization of American farms. Yields and the total acreage in production had been increasing steadily in response to advancements in machinery and biological innovations.[63] As a result, conditions were prime for a mortgage rush under the new land banks, and following the passage of the Federal Farm Loan Act Kansas led the nation in the demand for government-seeded credit. The Federal Land Bank of Wichita was the first of the twelve regional banks to open its doors, and the Farm Loan Board granted the inaugural national farm loan association charter to the Pawnee County Farm Loan Association of Kansas. During 1917 Kansans received more

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[58] Putnam, "Farm Credit in Kansas," 34.
[59] The department of economics at the University of Kansas conducted a survey of lending conditions in Kansas in 1914 that proved the data for Putnam's analysis. Putnam, "Farm Credit in Kansas," 28-29.
[60] Putnam, "Farm Credit in Kansas," 32.
[61] Frizell was a director of the First State Bank and Trust Company in Tribune, KS, along with Charles E. Lobdell, a member of the Farm Loan Board. Lobdell obviously understood a great deal about the credit situation in western Kansas, although all of the testimony in Hutchinson referred only obliquely to this connection. "First State Bank History," http://www.bankkansas.com/history4.htm (accessed 9 October 2012); Testimony of E. E. Frizell, Pawnee County, to the Farm Loan Board, Hutchinson, Kans., 32-33; See also the testimony of John L. Powell, Wichita, to the Farm Loan Board, Hutchinson, Kans., 105-06, for an urban businessman's perspective on the importance of a strong farm economy.
[62] Cunfer, *On the Great Plains,* 124-31; Shideler, *Farm Crisis,* 14-19; Worster, *Dust Bowl,* 80-99.
[63] Alan Olmstead and Paul Rhode, *Creating Abundance: Biological Innovation and American Agricultural Development* (New York, 2008), 19.

money from the federal land banks than any other Americans, profiting from a rate of closed loans more than twice that of North Dakota, the second highest-funded state.[64] The resulting influx of capital facilitated the plow-up of millions of additional acres of shortgrass prairie on both the Northern and Southern Plains during the following years, as well as a boom in wheat production that would have unanticipated economic and ecological consequences in the region for decades to come. The results were profound: almost simultaneously, the decline in interest rates spurred by the creation of the federal land banks led to dramatic reductions in the cost of improving operations, and, consequently, the improvements in efficiency long promoted by agricultural economists and farm managers.[65]

National newspapers were quick to predict the success of the Farm Loan Act, and the *New York Times* argued, "It will work a great transformation in the agricultural conditions of the whole country. Neglected and undeveloped areas will be developed." Reporters reiterated the assertion that a diverse constituency would benefit from this financing: "large holdings will be broken up, the number of homes will be multiplied, and the independence and thrift of the farmer will be advanced."[66] Many Kansas believed that economic impacts would prove even more pronounced on the High Plains, and one real estate broker from Dodge City testified before the Farm Loan Board that lenders had long refused to extend any mortgages in the region. L. L. Taylor explained, "I have probably 100 applications out there wanting money, and [the insurance companies] just write back that they are not placing any money in Morton, Grant, Stevens--."[67] Some eastern bankers surmised that national mortgage lenders simply would not extend loans west of the 99th or 100th Meridian.[68] Into this semi-arid, credit-starved landscape stepped the new federal land banks, with their start-up capital from the U. S. Treasury, committed local investors, and diversified agricultural interests.

Boom Times: Yields Rise as Interest Rates Decline

The cumulative impact of the federal land bank loans on the transformation of the nation's lending market was dramatic: the Federal Farm Loan Act created a new pool of money available with attractive terms and low rates of interest. As a consequence, the land banks altered both the terms of loans and precipitated significant declines in interest rates for American farmers, especially those on the High Plains. In September 1916, only three months after the passage of the Federal Farm Loan Act, Kansas lenders and borrowers were already arguing that the impact of the

[64] The first NFLA, the Pawnee County Farm Loan Association of Kansas, even merited a notice in the *Wall Street Journal*. The Pawnee County association received its charter on 27 March 1917 and subsequently applied to the Wichita Land Bank for loans totaling $61,000. "Farm Loan Association," *Wall Street Journal,* 28 March 1917, p. 4; Putnam, "Farm Credit in Kansas," 36; Kenneth M. Sylvester and Eric S. A. Rupley, "Revising the Dust Bowl: High Above the Kansas Grasslands" *Environmental History* 17 (July 2012): 609; Letter from unsigned, "Member, Federal Farm Loan Board," to D. F. Callahan, President, Federal Land Bank, Wichita, 10 March 1917, RG 103, Entry 87-A, b. 126, f. 2, NARA College Park; Federal Farm Loan Board, *First Annual Report*, 30.
[65] William G. Murray, "Farm Mortgages and the Government," *Journal of Farm Economics* 17 (Nov. 1935): 617-18; Quick, "Bankers and the Farm Loan Act," 14-15; Clara F. Wigder, "Farm-Mortgage Interest Rates," *Journal of Land and Public Utility Economics* 1 (Jan 1925): 107-10.
[66] "President Names Farm Loan Board," 6.
[67] Testimony of L. L Taylor, Dodge City, Hutchinson, Kans., 72, 76.
[68] Statement by Land Bank Commissioner George Norris, hearing of the Farm Loan Board, Hutchinson, Kans., 76.

Federal Farm Loan Act had begun even before the first NFLAs were formed.[69] John E. Wagner (a self-described banker-philanthropist) from Larned, Kansas, testified that bankers had dropped interest rates in anticipation of the passage of the Farm Loan Act: "It certainly has had a fine effect. If this Farm Loan Board never made a loan the effect would be the same to the farmer, that it has forced down the rate of interest that he is compelled to pay. It is making farm loans cheaper and will save millions because the very investor who is holding these loans today must either go out of business or meet the government rate."[70] A March 1917 article in *Outlook* reported that mortgage applications had declined in areas with historically high interest rates, and that "impending competition from the Government banks has made it necessary for [lenders] to quote the farmer lower rates of interest."[71] In 1918 the second *Annual Report* of the Federal Farm Loan Board summarized the consensus: the new system of government-seeded mortgage credits provided an "indirect benefit to every applicant for a farm loan through private agencies." The result was "A distinct reduction, not only in the rate of interest on such loans, but also in the accompanying charges and commissions, was manifest almost immediately after the passage of the act."[72] By adding additional competition and flexibility in the nation's mortgage markets, the federal land banks allowed farmer-businessmen to operate on a more equal basis with their urban counterparts.

The broader impacts of the new farm loan system stretched far beyond the nearly $30 million in federal land bank loans closed between 27 March and 30 November 1917. During these eight months, 1839 NFLAs funded amortized loans to over 14,000 American farmers at a fixed rate of interest.[73] This first influx of loans went to the nation's owner-operated, market-oriented farmers, those who were up to date with the latest developments in agricultural improvement. Even more significantly, these mortgages went to farmers in the historically under-financed parts of the country, "respond[ing] to the demand for credit in areas hitherto not emphasized by the leading

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[69] Taylor, who was in the real estate and mortgage business in Kansas, reported that mortgage brokers "been getting 6 and 2 per cent until this farm loan law was passed, and immediately the land companies I represent cut their commission half in two [sic] and gave the farmer the benefit of it, and instead of paying 8 per cent they are only paying 7." Taylor elaborated that the payment of the 1% commission was also being extended over the course of 1-3 years, rather than having to be paid in advance. L. L. Taylor, Testimony before the Federal Farm Loan Board, Hutchinson, Kans., 72-73.

[70] Similarly, a February 1917 article in the *Journal of Political Economy* written by one of the Federal Farm Loan Act's early proponents in Congress, Robert Bulkley (D-OH), reflected on the early impacts of the not-yet-in-force law: "the very anticipation of the establishment of a federal farm-loan system has already caused interest rates on farm mortgages to come tumbling down to a very marked degree throughout the length and breadth of the country." Bulkley, "The Federal Farm-Loan Act": 147; Testimony of John E. Wagner, Larned, to the Farm Loan Board, Hutchinson, Kans., 119, 121.

[71] By 1928, the regional average of interest rates charged in the United States ranged from the 5.5% by the federal land banks to a high of 7.9% charge by individuals in the West South Central states—a far cry from the Comptroller of the Currency's 1915 report recording rates as high as 1000%. Wickens, *Farm-Mortgage Credit,* 64; "Developments in the Farm Loan Field," *Outlook,* 28 March 1917, p. 583.

[72] Federal Farm Loan Board, *Second Annual Report*, 5.

[73] The land bank figures from the first months of 1917 were impressive: a total of $29,824,655.70 was distributed to farmers, while another $105,136,529 more was approved but not yet distributed. Nationwide, members of the new farm loan associations applied for a total of $219,760,740 in loans during those eight months. In 1910, as a point of comparison, 12,388,623 persons (male and female) were engaged in agriculture. Federal Farm Loan Board, *First Annual Report*, 14; U. S. Department of Agriculture, *Yearbook of Agriculture, 1918* (Washington, 1919), 714.

mortgage agencies."[74] Nationwide the land banks' fixed interest rate of 5% forced local lenders to compete with more competitive rates, freeing up millions of dollars in interest payments for other purposes. As a result, these new government-seeded institutions reconfigured the farm mortgage business.

The nation's wheat producers realized the most dramatic effects of this influx of government money, and land banks in Wichita, St. Paul, and Spokane led the nation in loans. Between March and November 1917, farmers working with the Federal Land Bank of Wichita (serving Colorado, Kansas, New Mexico, and Oklahoma) received $7.3 million in loans; the Spokane district (Idaho, Montana, Oregon, and Washington) extended $5.3 million in loans; and the St. Paul district (Michigan, Minnesota, North Dakota, and Wisconsin) borrowed $4.4 million.[75] The figures for the Wichita bank highlight the importance of mortgage credit to the conversion of the Southern Plains from shortgrass prairie to wheat (Kansas cultivation of field crops rose 9.4% between 1916 and 1919 alone).[76] Between March and November 1917 Kansas led the nation in land bank loans by a considerable margin, with more than $3.59 million in farm loans, twice as much credit as the next-highest states, North Dakota, Washington, Oklahoma, and Montana, which received between $1.8 and $1.6 million in loans.[77] Each new mortgage in these wheat-producing districts was invested in new land, machinery, and improvements, or used to pay off existing high-interest-rate loans. Almost overnight, these wheat farmers were able to realize their ambitions to fund increased acreages, new machines, or other efficiencies.

Long-term mortgages from the new federal land banks played a significant role in the expansion of U. S. wheat production after 1917. In this era of technological and mechanical innovations, new capital investments were of the upmost importance to wheat farmers, and the timing of this new pool of capital was opportune. In early 1917 the national government's concerns about food production were reaching a crescendo, and the U. S. Food Administration began an urgent wartime campaign for increased grain production; simultaneously, Plains wheat farmers were seeking to regroup after a dismal harvest.[78] Meanwhile, war-torn nations in Europe were no longer able to feed their population: the Central Powers had cut off Russian wheat supplies, French and Belgian farms had been ravaged by trenches and battlefields, and millions of young men had become soldiers.[79] Into this crisis stepped the United States government, which called for American farmers to increase their production of staple crops,

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[74] David L. Wickens, *Farm-Mortgage Credit*, Bureau of Agricultural Economics Technical Bulletin No. 288 (Washington, 1932), 27.

[75] By contrast, New England, served by the Springfield, Mass. bank, received $708,000 in loans, while the Berkeley bank (serving Arizona, California, Nevada, and Utah) received a total of $1.8 million in land bank loans. "Big Sum Loaned to Farmers," *New York Times,* 22 December 1917, p. 16.

[76] Lloyd Jorgenson, "Agricultural Expansion into the Semiarid Lands of the West North Central States during the First World War," *Agricultural History* 23 (January 1949): 38.

[77] There were 344 associations created in the Wichita district by November 1917, another 259 associations created in the Spokane district, and 126 associations chartered in the St. Paul district. Federal Farm Loan Board, *First Annual Report,* 30.

[78] U. S. Department of Agriculture, *Yearbook of Agriculture, 1918*, 11-12, 14. For more on winterkill on the Plains and the devastating incidence of stem rust in 1916, see Olmstead and Rhode, *Creating Abundance*, 37, 43.

[79] During the 1916 crop year, the European Allies purchased 203 million bushels of wheat, which was roughly double the United States' prewar grain export to the continent. This increase in demand came during a period of declining American yields due to weather, and as a consequence, grain prices spiked in the United States. Tom G. Hall, "Wilson and the Food Crisis: Agricultural Price Control during World War I" *Agricultural History* 47 (January 1973): 25-26; "Europe's Shortage of Food Now and in the Prospect," *Literary Digest* 54 (14 April 1917), p. 1140-42; Reynold Wik*, Henry Ford and Grass-roots America* (Ann Arbor, 1972), 89.

famously captured in Pare Lorenz' *The Plow That Broke the Plains* as "Plant more wheat… Wheat will win the war!"[80] The interventionist policies of the Wilson Administration played out dramatically in the agricultural sector.

President Wilson stressed the importance of increased agricultural production, and he spoke directly to farmers in an April address to the nation: "The supreme need of our own nation and of the nations with which we are [cooperating] is an abundance of supplies, and especially of food-stuffs. The importance of an adequate food supply, especially for the present year, is superlative. Without abundant food… the whole great enterprise upon which we have embarked will break down and fail…. Upon the farmers of this country, therefore, in large measure, rests the fate of the war and the fate of the nations."[81] Secretary of the Treasury McAdoo reinforced this message in a circular to the new federal land banks, stressing the "importance of cultivating every available piece of land," in order to meet the exigencies of war. Increasing production dramatically, in order to generate surpluses sufficient not only to meet the nation's domestic needs and the demands of military forces stationed overseas, was seen as an imperative by the U. S. government and by many American citizens. During the Great War patriotic duty and economic incentives came together and soaring wheat prices provided further inducements for increased production, especially once the Food Administration set a guaranteed price of $2.00 a bushel for the 1918 crop year.[82]

The wartime boom in agriculture reflected a new level of organization on the part of the nation's farmers, governments, and citizens. Until World War I, the federal government had hesitated to intervene in agricultural markets, but this too changed during the war years. Beginning in 1917 the Food Administration under Herbert Hoover engaged in a widespread campaign to increase agricultural production and conserve food supplies. Farmers put in their largest crops ever, increasing dramatically the nation's production of staple crops. The resulting growth in crop production was remarkable: in 1917 the acreage planted in cereals, potatoes, tobacco, and cotton reached a national record of 283 million acres; up eight percent from 1916 and a twelve percent increase over 1915.[83] The efficiencies that came from increasing government support for agriculture, the assurances of stable prices for wheat even in the face of dramatically increased production, and the encouragement of surpluses reshaped the expectations of American farmers and consumers, and signaled a new era in American agriculture.

Initially, the weather in the wheat belts did not cooperate with the nation's geopolitical interests, and dry conditions diminished yields in both 1916 and 1917. The 1917 *Yearbook of Agriculture* reported that the wheat crop of 1916 was "strikingly small," and predicted that "on account of adverse weather conditions," wheat yields would

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[80] This specific origin of this phrase is difficult to trace to the WWI years, but a reference in the *New York Times* indicates that it was not solely a product of Pare Lorenz and the writers of *The Plow that Broke the Plains*. I. D. Graham, "Concerning Profiteering on the Farm," *New York Times,* 12 September 1920, pp. 18, 28.
[81] Woodrow Wilson, "Address to the Nation," 16 April 1917, American Presidency Project, http://www.presidency.ucsb.edu/ws/index.php?pid=65399&st=farmers&st1 (accessed 25 September 2012).
[82] Letter from W. G. McAdoo to T. J. Guilfoil, 30 April 1917, RG 103, Entry 87-A, b. 126, f. 5, NARA College Park; United States Food Administration, *Grain and Livestock: National Policy Touching Vital Food Elements Indicated by Factors of the War Period* (Washington, 1917), 8.
[83] In 1916 the nation's farmers cultivated 261 million acres and in 1915 they had cultivated 251 million acres. Yet the 1916 wheat crop was 636 million bushels, compared with a billion bushels in 1915, and 650 million bushels in 1917. U. S. Department of Agriculture, *Yearbook of Agriculture, 1918*, 11; Hall, "Wilson and the Food Crisis": 25-26.

also be low in 1917.[84] Throughout the Southern Plains, where winter wheat prevailed, these dry seasons were nearly catastrophic, with winterkill scorching crops, leading to plummeting yields, and creating increasingly anxious farmers.[85] The correspondence between the Farm Loan Board in Washington and the Federal Land Bank of Wichita referred repeatedly to damaging wind and dust storms. The president of the Wichita bank, Dan Callahan, wrote in April 1917, "the wheat is blown out" in western Kansas and eastern Colorado, and that he had never seen "a worse Spring in this section of the state…."[86] Callahan responded to a follow-up inquiry a few days later: "To be honest about it, [I] have delayed a few days expecting we would get some rain. We are having more wind and dirt than we have had for 25 years. I have been out a few days myself this week, and the facts, between you and I, are that it is so bad it is almost impossible for men to work."[87] Drought and dust storms were regular visitors to the Great Plains, and dry conditions were no secret by the late 1910s. What was notable about this period on the Plains—a function of the strongest La Niña event of the first half of the twentieth century—was that it came at a crucial moment as the nation was pushing to increase its wheat production, and was strengthened by an influx of capital that permitted farmers to ride out weather conditions with a new source of credit. When weather conditions improved in the second half of 1917, Plains farmers were able to deploy new forms of credit and mechanize, consolidate, and plow up new land—spurring a dramatic increase in production, and profits.[88]

The day-to-day challenges of wartime production played out beginning in early 1917, as the federal land banks were beginning to organize. Young men, a crucial source of labor for American farms, were drafted into service and rising grain prices made fueling horse-power less economical. As a result, the nation's larger-scale farmers found new incentives to mechanize, and the increased availability of long-term credit drove significant increases in tractor purchases.[89] In 1910 there had been 4,000 tractors on American farms, and farmers purchased roughly 4,000 in each of the following years.[90] The war years saw a dramatic surge in tractor sales, with 28,000 sold

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[84] The 1916 wheat crop was 636 million bushels, compared with a billion bushels in 1915. U. S. Department of Agriculture, *Yearbook of Agriculture, 1917* (Washington, 1918), 9.
[85] Olmstead and Rhode, *Creating Abundance*, 34, 36-37, 43.
[86] Later that day, Callahan wrote another letter, reporting: "This Kansas weather keeps our land constantly on the move—the worst I have ever seen for several years." Letter from Dan Callahan to D. J. Coughlin, 6 April 1917, RG 103 Entry 87-A, b. 126, f. 4, NARA, College Park. Coughlin, also a Kansan, replied: "My family have been writing me that things in Barton County are looking very blue; also had a letter from the President of the German-American Bank, a short time ago, in which he stated that farmers were buying their seed wheat and hauling it home; so conditions in that part are pretty bad." Letter from D. J. Coughlin to D. F. Callahan, 9 April 1917, RG 103 Entry 87-A, b. 126, f. 4, NARA, College Park; Letter from Dan Callahan to Hon. Chas. E. Lobdell, 6 April 1917, RG 103, Entry 87-A, b. 126, f. 4, NARA, College Park.
[87] Letter from Dan F. Callahan to Hon. Chas. E. Lobdell, 9 April 1917, RG 103 Entry 87-A, b. 126, f. 4, NARA, College Park.
[88] The La Niña event of 1917 ranks as the most severe in history for the months March-November 1917, which affected the Great Plains wheat harvests of 1917 and 1918. The year 1916 ranked as 4th worst for June-August, and 16th most severe for September-November. Earth System Research Laboratory, National Oceanographic and Atmospheric Administration, "Southern Oscillation Index ranked by year, 1896-1995," http://www.esrl.noaa.gov/psd/enso/climaterisks/years.risk.html (accessed 20 May 2013).
[89] David Danbom, *Born in the Country: A History of Rural America* (Baltimore, 1995), 180; Fitzgerald, *Every Farm a Factory,* 95.
[90] U. S. Department of Agriculture, *Income Parity for Agriculture*, pt. 2, sec. 3 (Washington, 1940), 41, 53, 56, cited in Arthur G. Peterson, "Governmental Policy Relating to Farm Machinery in World War I," *Agricultural History* 17 (Jan. 1943): 37, 39; Wik, *Henry Ford and Grass-roots America,* 81-99.

in 1915, 50,000 in 1917, 96,000 in 1918, and 136,000 in 1919; in total there were 246,000 tractors on American farms by 1920. These tractors provided a means of expanding production onto the ever-larger fields of the Great Plains, and demanded an increased investment in farm machinery with profound implication on rural finance during the coming decades. The mechanical innovations of the 1910s and the wartime labor and feed shortage combined to drive the increase in numbers of tractors on the nation's commercial farms.[91]

Tractor purchases facilitated the increased cultivation of large acreages and precipitated a greater dedication to wheat production on the dryland farms of the Great Plains. The expansion of tractor power onto the Plains was further propelled by the launch of the low-priced, lightweight Fordson model in 1917, new competition that spurred tractor manufacturers to race to drop prices in order to claim increased market share.[92] Whereas the average cost of a new tractor in 1910 had been $1500, a 1918 Fordson was priced at $750. Consequently, the combination of reduced costs, rising profits, improved technology, and increased mortgage availability led to a five-fold increase in the number of tractors in Kansas between 1918 and 1922, from 5,000 to 25,000 machines.[93] The financial implications of farmers' investments in new farm machinery proved considerable: new implements loans necessitated adjustments to financial calculations, and often required increases in production in order to make regular payments. Machinery later became a liability when crop prices plummeted after the war, and during the 1920s the need to make payments on the interest due on implement loans contributed not only to the continued plow-up of shortgrass prairie but also to the surge in farm foreclosures.[94] The resulting surpluses, especially once the price floor was removed at the end of the war, led to dramatic declines in commodity crop prices, and the accumulation of vast quantities of unwanted grain on the Great Plains.

In the immediate term, however, the surplus production on the Plains was hailed as an unequivocal success, and in late winter 1918, President Wilson delivered an address to farmers that celebrated the increases in production since the spring of 1917, when "planting exceeded by 12,000,000 acres the largest planting of any previous year, and the yields from the crops were record-breaking yields."[95] The dramatic growth in cultivated land continued in subsequent years: by the 1920 census, the 6,717,000 farms in the United States were growing crops on 367,738,000 acres—more than one-fifth of the total land area of the continental United States, and an increase of over fifty-six million acres since 1910.[96] In Kansas, which ranked second in the nation in total cultivated acreage, the acreage in

[91] Fitzgerald, *Every Farm a Factory,* 100, cites H. R. Tolley, "The Farm Power Problem," *Journal of Farm Economics* 3 (April 1921): 91; Danbom, *Born in the Country*, 194.
[92] Cunfer, *On the Great Plains,* 127; Duffin, *Plowed Under,* 59.
[93] Cunfer charted the surge in tractor purchases using the Kansas State Board of Agriculture *Biennial Reports* from 1915-25. Cunfer, *On the Great Plains*, 124-25.
[94] Cunfer, *On the Great Plains,* 129; Fitzgerald, *Every Farm a Factory,* 96; R. Douglas Hurt, *American Agriculture: A Brief History* (Ames, 1994), 244.
[95] Wilson continued by celebrating the unprecedented acreage planted in wheat in the fall of 1917, 42.17 million acres, which exceeded by one million acres the previous high, and by seven million acres the average of the preceding five years. Reprinted address of 31 January in Urbana, IL to a meeting of farmers, as delivered for Wilson by University of Illinois President James. "President's Message to Farmers Asking Help to Meet War Crisis," *Washington Post,* 1 February 1918, p. 5.
[96] "56 Million Acres Added to Acreage," nd, no identified publication, in FLB Reference File, NARA CP, RG 103, Entry 3, Box 193, Folder: Reference File.

field crops in 1918 totaled 22,588,000 acres, almost half of the state's land area.[97] Further augmenting this surge in cropland, Kansas farmers secured an additional $3.59 million in new land bank loans for new land and machinery, thus facilitating the increased production that proved critical for supplying food to civilians and soldiers in the United States and abroad. By 1920 the Kansas wheat crop reached one hundred and forty-seven million bushels, up from a twenty-year average of eighty-six million bushels; this nearly two-fold increase revolutionized the state's economy.[98] Although the Kansas case provides the most dramatic demonstration of the impact of increased mortgage credit and higher crop prices on American agriculture, the pattern in this state played out to varying degrees across the rest of the Great Plains and the South.

Reshaping the Mortgage Market

The wartime boom in agriculture precipitated farm indebtedness and spurred additional investments in farm mortgages by land banks and other lenders. Increased mechanization, new technologies, and the urge to maximize profit from high wartime prices all drove farmers to borrow more money to improve their operations. Moreover, between 1910 and 1920, rising land prices and frequent land transfers more than doubled the nation's gross farm mortgage indebtedness from $3.3 billion to $7.9 billion.[99]

<Ins Figure 9: Map illustrating total mortgage debt. Note the dramatic increase between 1910-1920 (first two bars) throughout the grain belts of the Midwest and the Great Plains. Wickens, *Farm Mortgage Credit,* 14.>

American farmers borrowed money for land and machinery from neighbors, national life insurance companies, and state and national banks, as well as the new NFLAs. As of January 1919 private lenders, identified as "individuals and others" by the USDA, still represented the vast majority of mortgage holders, and these investors held more than $4,924,364,000 in additional farm-mortgage debt. By comparison, commercial banks were the largest institutional holders of farm mortgage debt in the United States, with $1,030,240,000 in farm loans, while insurance companies held an additional $1,018,163,000 in mortgages.[100] These life insurance companies spent the early years of World War I investing unprecedented amounts in farm mortgages, reporting an increase of $200 million in 1915 and 1916, and another $200 million during the first nine months of 1917. Insurance companies publicized their contributions

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[97] The amount of land in field crops in Kansas rose significantly during the war years: 1915, 19,359,633 acres; 1916, 21,861,985 acres (12% change); 1917, 22,252,920 acres (2%); 1918, 22,249,594 acres (-.01%); 1919, 23,084,050 acres (4%). Jorgenson, "Agricultural Expansion into the Semiarid Lands," 38; USDA National Agricultural Statistics Service, *Kansas Wheat History,* (November 2013), 6. Accessed at www.nass.usda.gov/Statistics_by_State/Kansas/Publications/Crops/whthist.pdf on 9 September 2014.

[98] Wheat acreages had averaged 52.5 million acres (producing 728.2 million bushels) between 1910-1914, expanded to 59 million acres (650.8 million bushels) in 1917, and reached a high of 64.7 million acres (918.9 million bushels) in 1918, a year when weather cooperated again and yields boomed. U. S. Department of Agriculture, *Yearbook of Agriculture, 1918*, 11-12, 14; Graham, "Concerning Profiteering on the Farm," 28.

[99] Between 1910-1920 the total farm-mortgage debt grew at a rate of 136%. Mortgage debt represented less than 10 percent of the value of all farm real estate in 1910, but had increased to 21 percent in 1928. Wickens, *Farm-Mortgage Credit,* 2-3, 41; L. J. Norton, "The Land Market and Farm Mortgage Debts," *Journal of Farm Economics* 24 (February 1942): 174.

[100] U. S. Bureau of the Census, *Historical Statistics of the United States, 1789-1945* (Washington, 1949), 111.

to the war effort widely, reporting to the *New York Times,* for example, that 95% of their loans were made "in the States that contribute approximately three-quarters of the bulk of the country's staple food products."[101]

Many analysts have argued that given the vast sums loaned by other types of institutional lenders, the federal land banks exercised a negligible impact on farm finance during the 1910s and 1920s. And it terms of dollars invested alone, the twelve federal land banks' mortgages totaling $156,214,000 pale in comparison with the nearly seven billion dollars in private and commercial loans made during the same period.[102] Yet the common interpretation that during the war years the land banks were, as L. J. Norton argued, "unimportant, having just been organized and in the process of finding a modest place for themselves," unravels when these loans are evaluated within the larger context of interest rates, amortization, and lending patterns in the wartime mortgage market.[103] Over the first twenty months following the passage of the Federal Farm Loan Act, the new government-seeded banks made a comparatively modest foray into the mortgage market, but at the same time, through their presence as a competitor in the mortgage marketplace these land banks exercised a major influence on interest rates nationwide, and especially on the rates and terms offered to borrowers by commercial banks and insurance companies.[104] Competition from long-term, amortized, government-seeded loans at 5% interest forced commercial lenders to adjust their lending patterns, and the widespread reductions in rates freed up additional capital for the nation's farmers during the critical production years of 1917 and 1918. By 1920, the usurious lending patterns described only a few years before were largely a relic of the past, and while average interest rates still remained higher in the South and on the High Plains, they had declined considerably (see Figure 10).

<Ins. Figure 10: Farm-Mortgage Interest Rates, 1920, reflecting market corrections that responded to the 1916 Federal Farm Loan Act. Wigder, "Farm-Mortgage Interest Rates," 106.>

The immediate impacts of long-term, amortized loans at a low rate of interest were especially evident in those areas that formerly suffered from inadequate access to credit. A 1935 study of farm mortgages correlated land bank loans with the average interest rate by state, demonstrating that in 1920 there was a conclusive "concentration of loans by the federal land banks in the South and West," areas that had suffered the most from undercapitalization and high interest rates. Economist Arthur Murray divided the nation into two parts, those states with medium average rates below 6.3% and those with rates above the average, and Kansas ranked seventeenth in the enumeration of the twenty-four "low interest" states; interestingly, the wheat states of Kansas and Nebraska were the only trans-

[101] Report of Life Insurance Presidents, as quoted in "Loan Insurance Funds for Farms, Association of Life Insurance Heads Say Plan Is Aiding World's Food Supply," *New York Times,* 28 August 1918, p. 11.
[102] In 1918, the states with the highest number of land bank loans remained the nation's largest wheat producers, although the order had changed: Texas received $13,568,461; North Dakota, $10,324,300; Kansas, $7,134,500; and Montana, $7,321,790. Federal Farm Loan Board, *Second Annual Report of the Federal Farm Loan Board* (Washington, 1918), 19.
[103] L. J. Norton, "The Land Market and Farm Mortgage Debts," *Journal of Farm Economics* 24 (February 1942): 174; Wickens, *Farm-Mortgage Credit,* 3.
[104] The West North Central states held land bank loans for $42,254,860: Kansas, $7,134,500; North Dakota, $10,324,300; South Dakota, $4,177,250; Minnesota, $5,512,200; Nebraska, $5,773,840; Iowa, $5,762,150; Missouri, $3,570,620. A total of $15,728,700 in land bank loans were closed in the Wichita district (Kansas, Colorado, Oklahoma, New Mexico) through 30 November 1918. Federal Farm Loan Board, *Second Annual Report,* 26.

Missouri states on Murray's "low interest" list.[105] Murray's larger conclusions are consistent with other evidence, and he observed, "The federal land banks in the early years obtained the largest percentage of the loan business in the high-risk areas."[106] Whereas the federal land banks overall held only 3.8% of the total farm mortgage debt in 1920, the proportion was 6.1% in Murray's twenty-four "high interest" states (not including Kansas and Nebraska), as opposed to 2.4% in the "low-interest" states.[107] These figures testify to the significance of land bank loans in those historically undercapitalized regions of the country that provided critical food and fiber during the war years.

Not all commentary on the federal land banks was positive, however, and between 1918 and 1920 there were a number of political and legal assaults on the Federal Farm Loan Act. While many lenders on the Great Plains had voiced early and consistent support for the legislation, local and regional bankers were not uniformly supportive of the developments in the farm loan field. During 1918 and 1919 Midwestern bankers led a series of efforts to delegitimize the federal land banks and the new system of government-seeded credit. In April 1919 the *Prairie Farmer* published an article freighted with meaning, "Gas Attack on Loan System," that reported on an initiative to derail the farm loan system, led by Congressman Joseph W. Fordney (R-MI). Fordney had argued: "The federal farm loan act is a farce. The loans made by the federal land banks are such loans generally as prudent bankers and money lenders will not make." To this accusation editors replied: "the loan system is almost universally satisfactory, except to the mortgage bankers. We would suggest that the Republicans better not monkey with the farm loan act unless they want to get in bad with the farmers…."[108] In August, the *Prairie Farmer* continued its campaign against the opponents of the land banks in an article chronicling how the Farm Mortgage Banker's Association was "out gunning" for the land banks. This article dissected several critiques of the administration of these credit agencies, arguing that attacks on the federal mortgage system were unfounded and based on "falsehood and misrepresentation."[109]

In spite of the political turmoil featured in the *Prairie Farmer* and the halls of Congress, the consensus across the nation was that benefited borrowers as they were empowered to seek new sources of credit, even as it challenged commercial lenders to compete with the federal land banks as they encouraged existing mortgagees to refinance their high-interest-rate, short-term loans. An estimated sixty percent of land bank borrowers used their loans used to pay off existing mortgages, while the remainder used their loans to improve their operations by purchasing land, erecting new buildings, and buying implements, equipment, and livestock.[110] The NFLAs helped farmers modernize, and operate as their own bankers, while their new long-term loans and lower interest rates granted the flexibility to invest in the labor-saving devices and economies of scale that were believed to represent the salvation of modern agriculture. The increased production temporarily bolstered regional fortunes, but it also led

105 Murray, "Farm Mortgages and the Government," 617-18.
106 Murray, "Farm Mortgages and the Government," 619.
107 Murray cites Thompson, "Cost and Sources of Farm Mortgage Loans," 2. Murray, "Farm Mortgages and the Government," 618.
108 "Gas Attack on Loan System," *Prairie Farmer* 91 (5 April 1919): 12.
109 "Land Banks Attacked: Farm Mortgage Bankers' Association Out Gunning for Government Land Banks," *Prairie Farmer* 91 (23 August 1919): 26-27.
110 F. B. Bomberger, "Farm Loan System Growing," *[Maryland] State College Journal* 2 (June, 1919), 50. Accessed at http://www.farmcreditarchive.org/assets/document/Titlow-Bomberger-19.pdf (accessed 15 May 2013).

the wheat belt into an unprecedented cycle of surplus production, and, eventually, foreclosures, bankruptcies, and, in the 1930s, drought and dust storms exacerbated by the vast acreages that had been put into production.

Conclusion

Acknowledging the importance of these new wartime sources of credit for owner-operated farms allows scholars to confront a series of new and compelling questions about the role of government-seeded credit in the transformation—and industrialization—of agriculture. During the late 1910s the terms of the Federal Farm Loan Act created a network of new financial institutions that permitted farmers to develop an expanded and increasingly efficient agricultural landscape that drove down commodity prices and produced annual crop surpluses. During World War I, however, it was not only the notorious "suitcase farmer" who benefited from this new system, but also those ambitious but undercapitalized farmer-businessmen who bought new land, new machines, and consolidated farms using new forms of low-priced credit. The presence of a new force in rural finance—the U. S. government—revolutionized the rural economy and led to the sustained manipulation of the formerly laissez-faire farm mortgage market through federal credit. These consequences contributed to the reconfiguration of the Great Plains in ways that would prove definitive during the coming decades. During the 1920s and beyond the continuing high levels of production and a new pattern of surpluses reshaped the landscape American agricultural production. As a consequence, farmers and policymakers have been governed largely by a federal agricultural policy dedicated to managing regular surpluses of commodity crops since 1933.[111] The environmental and agroecological impacts of these changes were sizeable, as many historians have recognized, and yet their political and economic impacts have been neglected for too long.

As the data indicate, lending by the federal land banks represented a relatively small proportion of new farm mortgage debt during the war years, and yet the provisions of the Federal Farm Loan Act exercised an outsized influence on the rural economy.[112] First, these government-seeded loans represented both a new source of credit and a competitor to the local investors, life insurance companies, and banks that had historically controlled most farm mortgages. As a result, between 1916 and 1920 the average interest rate for farm mortgages came down from between 8 and 10% to between 5.1% and 7.8%, a clear demonstration of the influence of federally funded farm loans at 5% interest.[113] Second, and perhaps even more importantly, the land banks' innovations in amortization provided an unprecedented and decades-long cushion for farm investments almost two decades before a parallel

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[111] See Hamilton, *From New Day to New Deal,* Leuchtenburg, *Franklin D. Roosevelt and the New Deal,* and Winders, *The Politics of Food Supply,* for studies of the AAA and other surplus control programs.

[112] Roughly three percent. As of 1 January 1920, the total farm-mortgage debt outstanding was $8.448 billion dollars. Federal Land bank loans totaled $293 million, national life insurance companies totaled $974 million, commercial banks $1.2 billion, and individuals and others, $5.9 billion. Bureau of the Census, *Historical Statistics of the United States, 1789-1945* (Washington, 1949), 111.

[113] Link, *A New Freedom,* 261; Taylor, *Agricultural Economics*, 180-81; Testimony of O. W. Dawson, farmer and loan broker, Great Bend, before the Farm Loan Board, Hutchinson, Kans., 19 September 1916, p. 69. RG 103, 530: 54/10-11/00, Entry 4, Federal Farm Loan Board: Minutes of Hearings, 1916. NARA, College Park; Wigder, "Farm-Mortgage Interest Rates," 103.

federal intervention reshaped the home mortgage marketplace.[114] Third, the greatest impacts of the Farm Loan system were felt in farming communities that had long been neglected by institutional lenders—those on the margins of production agriculture, including the High Plains and the Deep South. These undercapitalized regions proved instrumental to the war effort, even if their lack of native capital also signaled their ecological vulnerability. The availability of new credit spurred a rapid increase in the production of valuable commodity crops, which meant that the nation could export increasing quantities of grain and produce to Europe. The cumulative impacts of the new federal land banks far exceeded the sum of their loans during the first few years of operation because competition from government-seeded mortgages drove the reorientation of rural lending, and, ultimately, contributed to the reorganization of American agriculture during World War I and beyond.

The story of the economic, policy, and environmental impacts of the Federal Farm Loan Act highlights some of the unintended consequences of manipulating financial institutions: what originated as an attempt to offer expanded access to the national markets for credit proved essential for the improvement of individual farms, yet eventually contributed to a significant distortion of the agricultural marketplace. The surpluses that resulted from the expansion in acreage and the increases in productivity during World War I carried profound environmental, as well as economic and political, consequences for American markets. This government intervention in rural finance proved as influential as capitalism itself in fueling the development of agriculture on the Southern Plains, and contributed materially to the Great Plow-Up that transformed wheat production in western Kansas, Oklahoma, and eastern Colorado. Yet in spite of the unanticipated results from this government program, the federal land banks proved pivotal in increasing access to low-priced credit, and thereby corrected for a long-time imbalance that had held back entrepreneurs and working people in rural America. The creation of a government-seeded system of credit sped the emergence of a new landscape of production in the wheat belt, with it profound implications for the future of agriculture in the United States.

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[114] The practice of amortization did not enter the larger lending market in the United States until the creation of the Home Owners Loan Corporation during the New Deal. David Woolner, "Time to Bring Back the Home Owners Loan Corporation?" http://rooseveltinstitute.org/new-roosevelt/time-bring-back-home-owners-loan-corporation, (accessed 10 January 2013).