From Concrete to Comfort: Deep-Bedded Systems Power Niman Ranch's Success

Did you know that like birds, mother pigs – known as sows – instinctively build nests when they are close to giving birth? They gather straw and other dry vegetation to create a cozy and safe space for their piglets. Nest building is a highly driven maternal behavior that sows can only express when provided with adequate space and suitable nesting materials. For instance, farms within the Niman Ranch network do not use gestation or farrowing crates and instead provide sows with ample space, deep bedding, and on some farms, outdoor huts for the sows to give birth and nurse their young on pasture.

Unfortunately, most mother pigs in our food system today are unable to turn around, let alone build a nest. On conventional U.S. farms, a sow will spend the entirety of her ~16-week pregnancy in a barren gestation crate before moving into a similarly sized farrowing crate to give birth and nurse her piglets. Once her piglets are weaned about 3 weeks later, the sow moves back into the gestation crate for rebreeding.

Most pork produced in the U.S. comes from farms that do not offer pigs the ability to express most natural behaviors. Instead, both the mother sows and her offspring (the market pigs grown for meat) are housed indoors in cramped conditions on fully slatted floors over manure pits, with no bedding, enrichment, or access to the outdoors. This setup severely restricts their ability to engage in natural behaviors like rooting and foraging, leading to significant welfare concerns. Beyond the negative welfare implications, these systems have broader environmental and public health impacts, including the concentration of animal waste in liquid manure pits, which contributes to local water contamination and greenhouse gas emissions.

Consumer awareness about these farm animal welfare issues is growing, and consumers are increasingly concerned about the conditions in which their food is produced. This shift in public perception leads to rising demand for pork produced in more humane and sustainable systems, as reflected in the passing of state ballot initiatives that ban the sale and/or production of pork raised in crates and the increase of crate-free offerings on retailer shelves.

- In the United States, about six million sows are bred each year to produce piglets for pork production. **73% of U.S. breeding sows are kept in gestation crates** barely larger than their bodies, where they remain for their entire pregnancy or at least until pregnancy is confirmed (typically 28-35 days).[1] As of April 2025, only 27% of U.S. producers have fully eliminated gestation crates or invested in gestation crate-free systems that meet California's Proposition 12 standards.[2]

- **72% of U.S. sows will also be housed in farrowing crates** during farrowing (birthing) and while nursing their piglets for up to five weeks.[3] This inhibits the sows' ability to perform important nesting behaviors prior to giving birth and interacting with her young piglets once born.

- **83% of U.S. consumers reported they would switch to a brand that guaranteed their products came from farm animals raised under higher animal welfare standards.**[4]

The Push for Change: Legislation and Alternative Systems

In response to growing concerns, state legislation like California's Proposition 12 and Massachusetts's Question 3 was introduced and passed, setting minimum space requirements for breeding sows and banning the sale of pork from operations that do not comply. While this represents a step forward, there is still a need for more funding and guidance on managing alternative systems that prioritize both animal welfare and environmental sustainability.

Niman Ranch is a leader in this space, working with a network of independent family farmers who are committed to raising pigs in systems that reflect the highest welfare standards. Their approach not only benefits the animals but also aligns with consumers' desire for transparency and ethics in food production.

DRIVING HUMANE & SUSTAINABLE PRACTICES FOR U.S. FAMILY FARMERS

What began in the early 1970s as a small, family-owned cattle ranch in Bolinas, California, has evolved into one of the largest networks of small- and mid-size independent family farmers and ranchers in the United States. Today, more than 70% of U.S. pork comes from farms owned by large corporations rather than independent family farmers.[5] Niman Ranch stands out as a critical support system for American pig, sheep, and beef cattle farmers. By emphasizing traditional, sustainable farming practices, Niman Ranch's network offers an alternative to industrial farming while helping to preserve the livelihoods of U.S. family farmers.



Breeding sows housed in groups in deep-bedded pens (*credit: Niman Ranch*)

Niman Ranch and its network of over 600 U.S. family farmers and ranchers are committed to raising livestock humanely and sustainably. They are known for their high standards in animal welfare and environmental stewardship, leading the industry with practices that prioritize the well-being of animals. These standards, developed in part with guidance from renowned animal welfare expert Dr. Temple Grandin, ensure that Niman Ranch livestock are treated with respect throughout their lives. This commitment to humane treatment not only benefits the animals but also results in higher-quality products, renowned for their flavor and tenderness.

Expansion into Hog Farming: A Focus on Animal Welfare

While Niman Ranch initially gained recognition for its sustainable cattle ranching, the company expanded into hog farming in 1995 after forming a partnership with Paul Willis, a farmer from Thornton, Iowa. Willis's dedication to animal welfare and his commitment to sustainable land management made him a perfect fit for Niman Ranch's mission. This partnership allowed Niman Ranch to expand its offerings, adding sustainably and humanely raised pork to its product line. **Niman Ranch offers farmers a stable premium price per hog**, protecting them from the volatility of the commodity pork market and providing the opportunity for a more reliable return on investment and long-term economic stability. Today, the company's pork products are a testament to the belief that traditional farming practices can produce better-tasting, healthier food while supporting the environment and rural communities.

Scope and Impact of Niman Ranch Today

Niman Ranch's approach sets a benchmark in the industry. By focusing on humane treatment, sustainable practices, and partnerships with small- to medium-sized family farms, the company contrasts sharply with industrialized farming methods. In 2025, Niman Ranch purchased ~300,000 humanely raised pigs, reflecting the company's commitment to a more ethical and sustainable future for American agriculture.

Their high-quality products are sold nationwide in grocery stores, restaurants, stadiums, and online, positioning Niman Ranch as a leader in the premium meat market. Niman Ranch is a testament that humane farming can benefit not only the animals and the environment, but also the farmers and consumers who value quality and sustainability.



Paul Willis on his Iowa hog farm *(credit: Paul Willis)*

> ***"You don't have to be the biggest farmer in the county, you don't have to be the one with the most animals…You can be small, you can do a great job, and you'll be rewarded. There's a lot of pride in that."***
>
> - **Paul Willis, Niman Ranch Founding Hog Farmer**

Niman Ranch's success is not just due to its commitment to best practices, but also to the dedication of the individual farmers within its network. One such example is the Roseland Family Farm in Central Iowa, where generational knowledge and modern sustainable practices come together to produce high welfare pork.

Roseland Family Farm: Committed to Humane and Sustainable Farming

Generational farming runs deep at Roseland Family Farms. Tim Roseland, whose parents and grandparents raised pigs, cattle, and corn, decided to focus on pigs. His son, Curt, an Army veteran, has now returned to the farm to partner with his parents, continuing the family legacy.



The Roseland Family *(credit: Niman Ranch)*

The Roselands started operating a conventional (commodity) pig farm in the 1980s. After years of unpredictable market conditions, the Roselands joined Niman Ranch in 2005. This partnership prompted the Roselands to transition from total confinement farming to a more humane system using hoop barns with deep bedding, as per Niman Ranch's standards. They filled the manure pits, opened barns, and allowed pigs to root and roam freely outdoors. The family also adopted deep compost bedding techniques, using corn stalks they grew to keep the pigs comfortable and warm, which further improved their soil health through composting.

In 2005, the Roselands began selling their pigs to Niman Ranch and have continued ever since. Under Niman's "*no antibiotics ever*" policy, they adapted to raising healthy pigs without routine preventive antibiotics. Although this approach meant they had to forgo giving all animals antibiotics and risk losing money on treated pigs sold in the commodity market, the Roselands quickly noticed that the pigs were happier and healthier.

> ***The pigs were so much more stressed [before]. Now they just run and play. The combination of more room, the bedding, and being able to go outside make a big difference to them."***
>
> \- **Deleana Roseland**

The Roselands' experience highlights how reducing animal stress improves both welfare and productivity. Similar results have been seen in Europe, where better welfare practices have significantly lowered antibiotic use. For example, Danish pork producers, **cut antibiotic use by 27%** between 2009 and 2018.[6]

By transitioning to Niman Ranch's system, the Roselands not only improved the quality of life for their pigs but also ensured a better quality of life for their family. The premium pay they receive from Niman Ranch has helped create an opportunity for the next generation to farm.

ANIMAL WELFARE IN NIMAN RANCH'S SYSTEM

Niman Ranch's system emphasizes the natural behavior of pigs and offers several welfare benefits over commodity hog farming. In hoop barns with deep bedding, pigs find comfort, warmth, and opportunities to rest, root, forage, and play, which reduces stress and aggression. This low-stress environment significantly impacts pig health and minimizes the need for routine antibiotics commonly used prophylactically in conventional systems to prevent illness in stressed animals.



Pigs exploring and resting on deep straw bedding at A-Acres Farm *(credit: Ron Mardesen)*

Bedding serves as a form of enrichment, allowing pigs to express their natural behaviors, which is essential for their mental and physical well-being.[7] It lets pigs root, burrow, chew, and play, keeping them engaged and reducing boredom, which in turn lowers stress.

Niman Ranch has banned tail docking; a common industry-wide practice to reduce tail biting among bored and stressed pigs. Ample bedding reduces stress and provides engagement for pigs to reduce squabbles and biting. Bedding is also particularly important for sows during nesting, as the bedding materials enable them to build cozy nests for farrowing. Nest building is not just a comforting activity for the sows but also leads to a healthier and more relaxed birthing process, resulting in stronger, healthier piglets.[8]

Bedding also plays a crucial role in maintaining a stable environment by absorbing moisture and providing insulation. As the bedding composts, it generates heat, creating a natural warmth that helps pigs maintain a comfortable temperature, especially during colder months. By prioritizing bedding and low-stress conditions, Niman Ranch farmers create an environment where pigs can thrive naturally.

Niman Ranch's approach aligns with Compassion in World Farming's standards for pigs, which emphasize space, bedding, and natural weaning times to support good pig welfare. This contrasts sharply with conventional systems that rely heavily on confinement, routine antibiotics, and painful mutilations, such as tail docking and teeth clipping.





Piglets with intact curly tails play and rest on plentiful straw bedding *(credit: Niman Ranch)*



A sow and her piglets in an outdoor farrowing hut with deep straw bedding (*Credit: Niman Ranch*)

FARMER BENEFITS OF DEEP-BEDDED SYSTEMS

Deep-bedded systems offer a range of benefits that extend beyond animal welfare, positively impacting both farmers and the surrounding community. These systems not only create a safer and more pleasant environment for the animals but also enhance working conditions and farm profitability. Below are some key advantages:

- **Happier Pigs, Safer Environment:** Bedding keeps pigs occupied, reducing conflicts and injuries amongst groups of pigs. It also, in turn, creates a safer environment for farmers.[7]

- **Improved Working Conditions:** Less odor from manure and happier pigs make for a more pleasant working environment. No need to clean out dangerous manure pits.[9–11]

- **Better Meat Quality:** More gentle handling, enriched living conditions, and hog genetic selection for docility and outdoor environments reduce animal stress, leading to higher fat content and better overall meat quality, resulting in a premium product.[12–15]

- **Lower Capital and Operating Costs:** Over 80% of Niman Ranch farmers use composted pig manure instead of conventional fertilizers, providing protection from fertilizer price spikes and resulting in cost savings. This practice generates estimated savings of $114-$176 per corn acre, equivalent to 13-29% of projected gross corn revenue.[16] In addition, simpler outdoor-based barn designs are less expensive to build and operate, with the deep bedding providing natural insulation and heat, significantly reducing energy costs for heating, lighting, and fuel.

- **Stable Premium Pay:** Farmers receive higher and stable payments for their pork with additional welfare claims, improving overall farm income.

- **Public Health Benefits:** Deep-bedded systems have lower noxious emissions, lower risk of exposure to antibiotic-resistant bacteria from manure spills, and lower risk of hog-human disease transmission, leading to fewer public health concerns for people in the surrounding communities.[17–20]

- **Supporting Rural Economies:** Niman Ranch's small to mid-sized hog farms create 2.5 times as many jobs and 50% more economic value for the local community than conventional hog farms, per 100,000 hogs marketed.[21]

Economics of the System

From an economic standpoint, while deep-bedded systems require more labor to grow, deliver, and clean out bedding, they reduce reliance on volatile external inputs, *e.g.,* the market price of fertilizers.[16] There are additional costs associated with purchasing or growing bedding, but alternative systems, like deep-bedded hoop houses, have lower capital startup costs – **less than one-third of the cost of constructing confinement systems.**[22] Deep-bedded systems also reduce operational costs from lighting and heating, as the bedding provides the pigs with warmth and insulation in cold temperatures. By participating in these high welfare systems, farmers receive stable prices per hog, bonuses, or other forms of financial support, which can offset any additional bedding-related costs. Overall, these practices enhance farm resilience by reducing dependency on external inputs, contributing to a more sustainable and profitable farming model.[16,22]

SOCIETAL BENEFITS OF DEEP-BEDDED SYSTEMS

Environmental Benefits: Deep bedding supports circularity on many farms. Deep bedding provides natural insulation and warmth for the pigs, lowering the need for fossil fuels to heat barns, especially during colder months. Farmers grow crops like corn and oats for feed, then use the stalks and straw as bedding, which pigs begin to compost, turning the mixture of manure and bedding into natural fertilizer. This compost helps build and maintain soil health by returning nutrients to the land. As a result, farms rely less on synthetic fertilizers and become more resilient to volatile input prices. A 2026 independent sustainability assessment of Niman Ranch hog farmers, conducted by Dr. Alison Grantham of Grow Well, found over 80% of farmers use composted manure from their own operations to fertilize their crops.[16] **Nearly 40% of Niman Ranch farmers have reduced chemical inputs on their fields over the past three years, and 17% have been able to eliminate pesticide, herbicide, and fertilizer use entirely.**[16]

Most importantly, composting manure produces significantly less methane than the liquid manure pits used on commodity hog farms. Methane is a highly potent greenhouse gas, and as the U.S. pork industry has expanded its use of liquid manure systems, manure-management emissions have risen 38.6% since 1990.[23] Dr. Grantham's analysis found that the **Niman Ranch system generates 60% lower greenhouse gas emissions and 90% lower methane emissions than conventional pork production**.[16] Because deep-bedded barns require less energy for heating, lighting, and fuel, operating energy contributes only 1.3% of the Niman Ranch carbon footprint, compared with 5% for a typical U.S. confinement pork operation, a reduction of nearly 75%.[16]

Niman Ranch producers further document a range of soil health and biodiversity benefits from regenerative practices such as cover cropping, extended crop rotations, reduced or no tillage, rotational grazing of cattle, and the establishment of pollinator habitat, buffer strips, tree lines, and hedgerows. When combined with composted manure and diverse crop rotations, these practices help farmers build healthier soils, improve water quality, and support biodiversity.

Air Quality: Deep-bedded systems also improve air quality for both pigs and nearby communities. In contrast, liquid manure pits from commodity farms release harmful gases, such as ammonia, hydrogen sulfide, and methane, a potent greenhouse gas. By avoiding pits, Niman Ranch farms significantly reduce odor emissions and the risk of respiratory illnesses for people living nearby.[18–20]

CULTIVATING CHANGE: COMPANY SUPPORT TO ADVANCE THE WELFARE OF U.S. PIGS

Niman Ranch's farming system benefits animals, farmers, and the planet. Deep bedding allows pigs to express natural behaviors like rooting and nesting, leading to happier, less stressed animals and reducing the need for interventions, like routine antibiotics, commonly used in commodity hog farming. Farmers gain a safer, more pleasant working environment with less odor and calmer pigs, and more stable financial returns. The deep-bedded system contributes to environmental sustainability by creating a closed-loop system that recycles nutrients and reduces waste.

Supporting the Transition: As Proposition 12 and Question 3 require gestation crates to be phased out, producers will need clear guidance to transition successfully. Moving away from crates requires more than changing the setup. It involves adding enrichments, selecting appropriate genetics, and investing in staff and farmer training to work effectively with uncrated sows. CIWF's Food Business Team is available to support this transition with technical resources and on the ground guidance, ensuring animal welfare remains a priority.

Advocating for Transition: With recent efforts to overturn California's Proposition 12, including federal proposals, such as SOBA (Save Our Bacon Act), it is critical for companies to publicly support crate-free production. Companies can support crate-free producers by voicing opposition to the SOBA and similar measures and developing clear roadmaps to source exclusively high welfare pork.

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NIMAN RANCH AT A GLANCE	
Production Information	
Farm location(s)	19 states across the Midwest & East Coast
Farm type(s)	• Indoor bedded pens (*e.g.,* in hoop barns, retrofitted barns, bank barns, & open front sheds) with or without outdoor access. Fresh air and sunlight required • Pasture-based systems with English-style huts, A-frames, or E-huts
Stage(s) of life	Farrow to finish, wean to finish, farrow to wean
Certification program(s)	Certified Humane, Global Animal Partnership (Step 1), Proposition 12 & Question 3 Certified
Inputs	
Breed(s)	Niman Ranch does not require specific breeds but offers a premium to farmers using genetics with higher meat quality
Feed	100% vegetarian diet. No animal by-products (dairy exempt)
Antibiotic use	No antibiotics ever. When necessary, sick animals must receive antibiotics but are ineligible for marketing under the Niman Ranch program
Herd size per farm	Average of 700 pigs shipped annually per farm
Confinement	Gestation crates, farrowing crates, and tethering are prohibited. Temporary confinement (≤ 2 hours) is permitted only for documented veterinary procedures
Maximum stocking density	<u>Breeding sows</u> • 35ft² (16ft² bedded) per sow • 24ft² (16ft² bedded) per post-service gilt <u>Farrowing sows</u> • Farrowing pens: >64ft² & sow can turn around freely

	• Pens: 48–64ft² require sow to be let out twice daily for ≥1 hour each time • Farrowing huts: >35ft² (often on pasture); sow & litter can move freely between the hut and a ≥64ft² communal area <u>Meat pigs</u> • Nursery pigs ≤35lbs: 4.5ft² (3.5ft² bedded) • Nursery pigs 36-55lbs: 6ft² (4.5ft² bedded) • Grower pigs 56-112lbs: 7ft² (5.25 ft² bedded) • Finishing pigs >112lbs: 14ft² (7.5ft² bedded) <u>Boars</u> • Boars <350 lbs.: 48 ft² (24ft² bedded) • Boars >350 lbs.: 64ft² (32ft² bedded)
Ventilation	All farms must keep air quality records for indoor production and hoop barn structures. Ammonia levels >25 ppm must be corrected immediately and documented. Wallows and/or sprinklers are required when pigs show signs of heat stress
Lighting	All Niman Ranch animals must have access to fresh air, sunlight, and a natural light-dark cycle
Flooring & bedding	Solid flooring with ≤25% slatted flooring. Bedding must be deep enough to nest in wet or cold (<60°F) conditions. Preferred bedding: straw and corn stover; allowed alternatives: wood chips, shavings, soybean stalks. Sows/gilts must have long-stem bedding for nest building starting 3 days before farrowing (4lbs of straw/day recommended). Other bedding materials are allowed post-farrowing
Indoor environmental enrichment	Pigs always have straw, wood chips, sawdust, or peat for rooting and chewing
Outdoor enrichment	For pasture-based operations, ≥50% vegetative cover on pasture. Outdoor shelters must comfortably fit all pigs lying down and weather protection. Dry bedding required for nesting in wet or cold (<60°F) conditions
Piglet weaning age	Minimum weaning age: 28 days. Early weaning is prohibited except when sow and/or piglet welfare is compromised
Mutilations	Tail docking and teeth clipping/grinding are prohibited. Castration (via scalpel or surgical scissors) and ear notching are allowed up to 10 days of age. Pain relief is not required. One nose ring is permitted on breeding animals.
Transport time to slaughter	Transport time for hogs is on average 7 hours.

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