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Bull Sheet printed by Ever-Redi Printing, 5100 East Ave., Countryside, IL 60525.

The **Bull Sheet** is published once a month. All articles are required by the 10th of the month to make the next issue. Advertising is sold by the column inch, by the quarter page, half page, and by the full page. All artwork to be finished and in black and white. Circulation is around 500 issues per month.



President's Message

I hope everyone had a happy and enjoyable holiday season. It does us all good to relax and enjoy the festivities with family and friends. Be sure to take the time to appreciate the slower pace, it is only a short time until spring will renew the demands of another golfing season.

As I look back and reflect on 1985, I feel the M.A.G.C.S. had another outstanding year. Our monthly meetings were well attended and the arrangements, golf, and education committees did an outstanding job of organizing our activities. This year's family picnic was an enjoyable addition that I hope will become an annual event. Finally, I must commend Jim Evans and the education committee on the excellent job that was done presenting the Midwest Clinic at Medinah Country Club.

While I am on the subject, I would like to address the matter of the Midwest Clinic. After our recent return to Medinah, a few members inquired as to why we do not return to Medinah permanently, because it provides an atmosphere second to none. This point I cannot argue, Medinah's accommodations are overwhelmingly comfortable. Combine that with excellent meals and outstanding service and one might question the wisdom in taking our clinic elsewhere. However, there are always two sides to a coin. When the board of directors decided to present the Midwest Clinic in conjunction with the NCTE it was a very difficult decision. We did not want to lose our identity. And in fact we did not. The combined efforts of the University of Illinois, the U.S.G.A., and the M.A.G.C.S. proved to be the boost needed to bring a successful education and trade show to Illinois. This joint venture provides excellent opportunities to keep pace with the industry for everyone, especially those who are unable to attend the national conference. In addition to this the U. of I. has realized increased revenues for research and the Midwest Clinic (and the M.A.G.C.S.) has achieved a level of exposure that is not possible at Medinah.

Our goal as an association is to provide fellowship and education to our members as well as to the rest of the golfing community. So, speaking for the board of directors, I would like to make it clear that our commitment to the U. of I. and the NCTE stands strong. I hope the membership understands this position. I also hope that in the future when the NCTE is not in Chicago we will be able to return to Medinah and enjoy the comforts of tradition.

Continuing on the conference band wagon, I am sure everyone is looking forward to the national in San Francisco. I hope all our members are able to attend, the G.C.S.A.A. has put together another fine program. While you are in San Francisco stop in at the Midwest room and also leave time in your schedule to attend the M.A.G.C.S. caucus. Our voting delegate, Lenny Berg, puts a lot of effort into evaluating the candidates for us, however, you the members must decide who will lead us on the national level. Your opinions and the voting strength of the association will make a difference. See you in San Francisco.

David R. Behrman

Sand Trap Renovation

by Mike Nass

Every year there seems to be a different area of golf course that gets singled out for constructive criticism. Often times the same areas are singled out in general throughout the District. This year sand traps seemed to have been the most frequent topic of discussion.

After listening to complaints about the supposed lack of sand in our traps, I astutely determined something should be done to correct this situation. The first step was to accurately define the problem. There actually was more than enough sand in the traps, but its quality was poor. Over the past twenty years or so, through four superintendents, sand had been added regularly, with each superintendent probably using a different sand. The results were a product that made a reasonable roadbed but a so-so trap. The general appearance of these traps was somewhat dull and dirty. This added to the preception of no sand in the traps.

To add enough new sand to the existing traps to achieve our desired results would have left the traps overfilled. It was decided to remove all the old sand and replace it with new sand, improving the consistency of play and the general appearance.

We were going to attempt to do this for the green traps on all the holes, except the three that had been rebuilt two years ago. This amounted to twenty-eight traps.

To facilitate the removal of the old sand, we rented a Bobcat loader. This turned out work very well. It had sufficient power to move the sand and the maneuverability to work in a tight area.

The removal went smoothly, but a problem arose as what to do with all the old sand. Since we have a limited dump area, we decided to use the sand, contaminated with dirt, to construct target greens on our driving range. We were able to construct three good sized greens to which we will add simulated traps of crushed limestone next spring. The entire removal process took about four weeks using just two or three men.

As for the new sand, we are using a mason sand from Old Dutch. We are filling the traps to a depth of four to six inches. The wet weather has hindered our progress but as of Thanksgiving we had six traps that remained empty.

We are dumping the new sand inside the traps and leaving it to be spread later. The spreading will be done by an outside contractor using a swinger loading tractor. This same method has been used successfully at other courses in the area. Approximately three hundred tons of sand can be spread per day in this manner.

When the job is finished, I expect I will have used about one thousand tons of new sand. The total cost of the project is expected to be about \$15,000 excluding in house labor.

It is hoped that with new sand and new target greens we will have eliminated two problems and will be ready to face new problems when and if they arise next year.

Turfgrass Research a Vital Need

The golf course industry is sitting on a time bomb.

The ticking may be a little difficult to hear, amongst all the talk of billion dollar purses, \$40 million, 54-hole real estate developments and new golf balls that travel 100 yards and sing the national anthem, but it's ticking away.

Somewhere between now and the turn of the century, experts predict, the high cost of golf course maintenance and restrictions caused by water shortages will undoubtedly catch up with, and could severely cripple, the golf industry.

This is a bomb that will have to be diffused through turfgrass research — specifically, through the development of lower-maintenance grasses and those that require less water. And, recognizing the reality of that fact, that is what much of today's turfgrass research focuses on.

And there's little disagreement through out the industry that this is a problem whose time is quickly approaching.

"In the next 10 to 20 years, there are going to be water shortages," said William Bengeyfield, head of the USGA Green Section. "The first people to be cut off will be golf courses, parks and recreation areas."

James Prusa, associate director of the Golf Course Superintendents Association of America, wonders why turfgrass research for golf courses has taken a back seat in the past. "Turfgrass research is the poor boy of agricultural research," he explained. "And fundamentally, golf is responsible for turfgrass research. Golf brought turfgrass research to where it is today. All of the major funding comes through golf. No other sport, really, has put money into turfgrass research.

"But when an advance is made, in any field, it helps everyone."

Why is the general public so seemingly unconcerned about the problems?

"If there is a weakness in turfgrass research, it's due to the golfer and the clubs," stated Dr. Richard Hurley, research director for Lofts Seeds, Inc. of Bound Brook, N.J. "Every golfer loves to go into the pro shop and talk golf with the pro. The only time a member talks about turf is in generalities. Never does the average member start a discussion on turf.

"Really, unless you're in the industry, it's a boring subject."

Dr. James Watson, vice president of The Toro Co. puts at least some of the blame on the turf industry. "We talk to ourselves and tell each other how important it (turfgrass research) is," he explained. "But we don't talk to our public. The average golfer has very little understanding of what goes into the maintenance of a golf green. As long as the grass is green and he shoots a low score, he's happy."

Like most things these days, money is the bottom line. And that money is going to have to come from a great many sources; private donations, commercial manufacturers and golf clubs themselves.

If there is a champion of the cause, it's the USGA's Green Section. Not only does the Green Section have the means to raise the most money, it also has the expertise to see that it's spent in a worthwhile manner.

In 1983, there was \$233,000 divied out by the Green Section to various turfgrass projects throughout the world. Last year, the figure reached \$386,000, and there will be even more alloted this year.

(cont'd. on page 4)

That money comes from the USGA's Capital Campaign Fund project, which hopes to come up with \$10 million over the next three to four years. About \$2.5 million of that will go toward turfgrass research.

Besides raising money, the Green Section also serves as an organizer for the country's turfgrass projects. In fact, some may argue that it's most important function is to serve as a sort of clearinghouse to assure that efforts are not duplicated.

"The USGA took a giant step in launching this project. It certainly is the largest organized effort, and it also is nationally organized," Watson said.

To raise some of the funds, the Green Section has asked the GCSAA members at the clubs across the nation to approach their greens committee and ask for pledges of \$2 per member to be donated toward research projects.

"Research is a very slow process," Prusa said. "It's going to take a truly joint effort. For once, we've got a centralized effort."

"There have been two entities responsible for the high level of golf course maintenance today," said Bengeyfield. "One is the golf course superintendent. He's the guy who's developed the new machinery — then the commercial suppliers picked it up. He's given us the greatest golf turf in the world. And the other is the Green Section."

There is also a lot of worthwhile research being conducted by private industry and in colleges and universities. Before the Green Section's recent research project was organized, most of the breakthroughs in turfgrass were made at the university level from small grants from the USGA and others in the private sector.

"The money was dispersed in small amounts to many different areas," Dr. Watson explained. "That was a very necessary stage of development for turfgrass research, because it got a lot of people interested."

Many of the major advances, especially in the development of new cultivars, have come from the universities like Penn State and Rutgers. Today, there are schools all over the U.S. with excellent turfgrass programs.

"You've got about 35 or 40 universities that have some type of turfgrass program," said Hurley, who himself earned a Ph.D from Rutgers University in Turfgrass Breeding. "Of those, 10 have fairly large programs in research. Another 10 have strong teaching programs. Some universities go in different directions. For instance, Michigan State has a strong teaching program to develop golf course superintendents."

Many schools also have shorter two-year programs for those already working in the industry.

The schools frequently benefit from their discoveries through royalties. Hurley explained that his own firm pays Rutgers University a six-figure amount each year, based on royalties on every pound of seed sold.

So the picture is not totally bleak — there is reason for optimism. "I think our goal of a 50 percent reduction in water use is realistic and attainable," said Dr. Watson. "In fact we can take a large step just by putting into practice the technology that's available to us now."

We're a lot closer than is generally believed," Bengeyfield added.

Bengeyfield cited the potential use of Zoysia grass, a strain

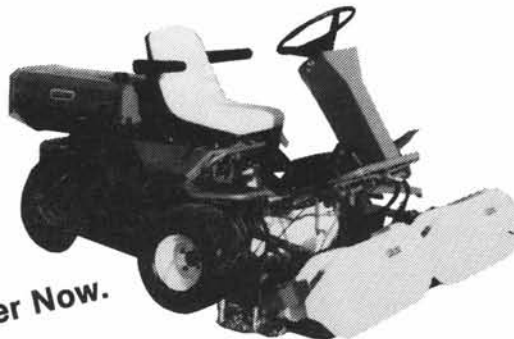
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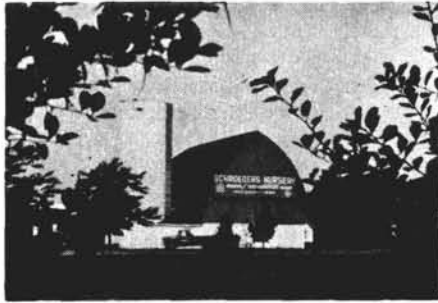
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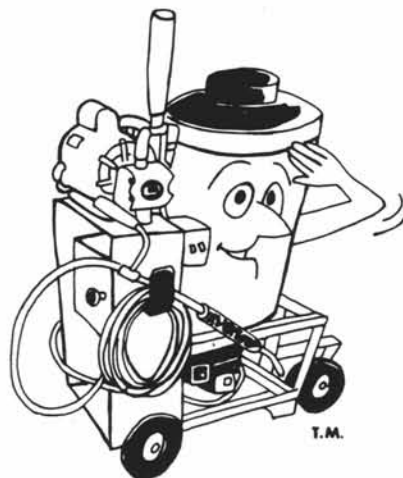
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Foliar Feeding — Friend or Foe?

by James H. Boyce, Conslt. Agronomist
Ottawa Ontario, Canada

The answer to the question posed in the title of this article can be quite simply stated — it all depends on how you use it — a not unfamiliar factor in determining whether a particular deed will make a friend or an enemy. There can be no denying that liquid fertilizers applied as sprays can be quite useful in the turf maintenance program provided they are properly applied at the correct time and for the right purpose. Neither can it be denied that the indiscriminate and prolonged use of such fertilizers can result in utter disaster. It was the observation of several such disasters on a number of golf courses in the province of Quebec during the late summer of 1984 that prompted the preparation of this article. Recently acquired information that the promotion of the spray application of fertilizers is about to be greatly increased has emphasized the urgency of the situation and made it essential that the information contained herein be placed before the turf managing public at the earliest possible date. It is hoped that it will help turf managers to avoid similar catastrophies in the future.

It is universally accepted among turfgrass agronomists that the most important part of the grass plant is the part that we do not normally see — the root. If a deep, healthy root system can be maintained in a turf, the top will pretty well look after itself, with minimum assistance from the turf manager. Unfortunately many of the practices that we follow particularly that of close mowing, tend to reduce the development of the root system, thus making the turf susceptible to all forms of environmental stress and requiring maximum attention by the turf manager to nurse the sward through stressful times. Hot weather worsens the situation because it further causes root reduction.

If a person injures an arm and has it placed in a cast or sling for an extended period, the muscles in that arm become atrophied and the arm withers to the point that, when it comes out of the cast or sling it is practically useless, because of disuse, and it requires much exercises and probably physiotherapy to restore the tone and strength of the muscles. If a grass plant is continually fed through the leaves it has no further use for roots and because of this disuse the roots wither and die to the point that they become non-existent. We haven't discovered how to exercise or apply physiotherapy to roots so the plants must get along without them until root - regeneration time in the cool fall weather. Unfortunately it is usually too late by the time cool weather arrives since a turf without roots is unable to withstand any other environmental stress be it heat, drought, disease or any of the many other things that can happen and usually do occur during our stress-filled summer months. The result is dead turf and the consequent necessity of replacing it either by seeding or by sodding.

There are many advantages to the spray application of fertilizers, not the least of which is the fact that one can apply compatible pesticides, fungicides, herbicides, wetting agents and other materials along with the fertilizer thus reducing significantly the total amount of labour that would be involved in applying each of these materials separately. This is what appeals most to turf managers who are charged with the responsibility of growing the best possible turf at the lowest possible cost. This in turn is responsible for the continuous use of liquid fertilizers in spray form by otherwise excellent managers who do not

realize what they are doing to the root systems of their turfed areas. The resulting damage will occur on any turf continuously treated in this manner but appears first on intensively managed areas such as putting greens where extremely close mowing has already reduced the amount of root development to the bare minimum required for survival. The damage is usually sudden, frequently overnight, and what the day before was a beautiful piece of turf is suddenly yellow to orange in color and quite dead in appearance. The amount of money required to replace this turf soon uses up any that was saved in making multiple applications in a series of one-spray treatments. The amount of revenue lost in reduced play, lowered public opinion and loss of memberships are incalculable.

Root reduction in foliar feeding is further influenced by the fact that nutritional imbalance is created by more rapid absorption of nitrogen than of phosphorus. The role of the latter element in root development is well know.

The question arises as to when foliar feeding may be practised to the advantage of the turf. Since the response of turf to foliar feeding is much more rapid (often overnight) than it is to dry applications to the soil it is most frequently used as a "shot-in-the-arm" treatment when the turf must be prepared quickly for a particular event or time. It is also useful when the need for an element, particularly a micronutrient, is acute. In the case of heavily compacted or water-logged soil conditions, foliar application of fertilizer will help sustain the turf until these conditions can be corrected.

In short, use foliar feedings to nurse turf through trying and stressful circumstances. But make sure the backbone of your fertilizer program is based on the application of dry fertilizers balanced to the particular fertility requirements of your soils, as determined by quantitative analyses. And **never under any circumstances** use foliar applications continuously in fall and early spring when root development should be at its peak.

Continuous and exclusive use of liquid fertilizers in spray form will eventually result in the destruction of turf, first on greens, then on tees and finally on any other turfed areas treated in this manner on a golf course. Even lawn-type turf is not immune to the "no root syndrome" caused by exclusive use of foliar feeding which will ultimately result in loss of turf and costly re-establishment practices.

Editors note: These observations by Dr. Boyce are well in line with research results reported by Norman MacLeod in 1958. A University of Massachusetts Master of Science Thesis entitled "A Comparison of Liquid and Solid Fertilizer for Turf" was among the first in the United States to be presented in response to questions raised by oil dealers who wanted to spray liquid fertilizers on turf in the "off season".



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(Turfgrass Research cont'd.)

that has "tremendous potential" once some of the problems are solved — namely, the difficulty the grass has of propagating from seed, and the fact that it's slow to grow and cover spots over. It also has difficulty in cold weather climates. On the bright side, the grass, which was brought here from Southeast Asia, has a low water/nitrogen requirement, and since it doesn't grow very fast, requires less maintenance.

Hurley explained another exciting discovery which could make a difference. "We've found a fungus which lives in the tissues of certain grasses that produces its own protection from insects," he remarked. "It produces an alkaloid toxic to insects. Now, can we develop a bentgrass variety for use in putting greens? That would be a significant discovery."

"There are direct applications of turfgrass research," Prusa stated, "that could have a direct bearing on agriculture's ability to improve on the production of food and fiber."

"There is a possibility that we can discover something that might go a long way toward feeding the world."

"Of course, there's never enough being done," Bengeyfield said. "We can always do more if it's properly coordinated and directed. You can give anyone money and they'll spend it on something. But will it be important?"

"We have to all work together and work toward positive answers that will be meaningful to the game of golf."

Credit: The Wedge, Jan./Feb., 1985

Effect of Nitrogen Fertilization on Earthworm and Microarthropod Populations in Kentucky Bluegrass Turf

**by D. A. Potter, B. L. Bridges and F. C. Gordon, 1985
Agronomy Journal, Vol. 77, Number 3, pages 367-372**

Turfgrass is a complex system consisting of the roots, stems and leaves of grass plants together with a tightly intermingled layer of dead and living roots, stems and organic debris commonly called thatch. This habitat supports a diverse assemblage of invertebrates, including earthworms, nematodes, millipedes, oribatid mites and collembola. These are important to plant litter decomposition. They aid in the decomposition process by fragmenting and conditioning plant debris before further breakdown by microorganisms. They also disseminate bacteria and fungi, enrich the soil with their excreta and help to pull down and mix organic matter into the soil. A Kenblue Kentucky bluegrass turf treated with varying rates of ammonium nitrate fertilizer was maintained for study. Increasing the rate of nitrogen fertilization produced a decline in soil and thatch pH and in exchangeable calcium and potassium and caused an increase in thatch development. A decrease in earthworm density and biomass was noted as annual fertilizer rates increased. Collembola were more abundant at an intermediate fertilizer rate. Acaridae were unaffected by nitrogen fertilization. Cryptostigmata were found to be the most abundant arthropod decomposers in the turf.

The Fate of Diazinon Applied to Thatched Turf

**by B. E. Branham and D. J. Wehner, 1985
Agronomy Journal, Vol. 77, No. 1, pages 101-104**

The plant-thatch-soil continuum has a major effect on the rate of dissipation of pesticides applied to turfgrass stands. Thatch is defined as a tightly intermingled layer of dead and living stems and roots that develop between the zone of green vegetation and the soil surface. In order to maximize the efficacy of pesticides aimed at controlling soil-borne insects, it is important to understand how soil properties and the presence of thatch affect the rate and avenues by which pesticide dissipation occurs. Diazinon is widely used to control turfgrass insect pests. A Kentucky bluegrass turf with and without thatch was used to study loss of Diazinon by volatilization, leaching and degradation. Only seven percent of the Diazinon remained after three weeks. Between thirty-two and forty-seven percent remained in either turf with thatch irrigated every four days or in turf without thatch. Most of the Diazinon (96 percent) remained in the top 10 millimeters (0.4 inch) of the turf profile regardless of whether this was thatch or soil. Where thatch is present, reduced control of insects is due to both a failure of the insecticide to move through the thatch and an increased rate of degradation.

In Your Garden

For the Spice of Your Life

by James A. Fizzell

Sr. Ext. Adviser, Horticulture, U. of I.

Want to add a little spice to your life? Want to add a little flavor to things? Then, try a window-sill herb garden. Salads, soups, stews, and sauces can all be spiced up with herbs grown on your window sill. In addition, many herbs make nice foliage plants as well.

For the beginner, start with easily grown types such as parsley, chives, and sweet marjoram for mild tastes; and rosemary, sage and thyme for the strong pungent taste.

Parsley makes a nice garnish for salads, soups, stews, potatoes and meats. Chives are good for soups, salads and homemade potato chip dips.

Rosemary is good in both sprig and leaf form. It is used with meats, sauces and soups. A prime flavor in turkey stuffings is sage. It also goes well with pork chops. Finally, thyme, the last member of the beginner window sill garden, goes well in soups, omelets and gravy.

To grow herbs, get good quality seed. Plant in seed flats and transplant; or, plant directly into pots and thin out excess seedlings as needed. Keep soil moist but not wet, cautions Fizzell.

Once the herbs are growing, they will do best in a sunny south window, with 65-72°F. temperatures, and a soil allowed to dry slightly between waterings. Fertilize about every six weeks with a weak, water soluble fertilizer solution. Harvest the herbs at periodic intervals to keep the plants healthy. Harvest the older leaves first.

Growing your own herbs can be very rewarding, producing attractive foliage plants, and adding flavor to your food and spice to your life.

Introducing the revolutionary **DUAL EXPRESS** grinding machine Discover why it's the best grinder in the world!

The **EXPRESS DUAL** is a professional cylindrical spin grinder, developed over 16 years ago in England, by the one company who originally started manufacturing reel grinders in 1871. It is built to last and requires no service.

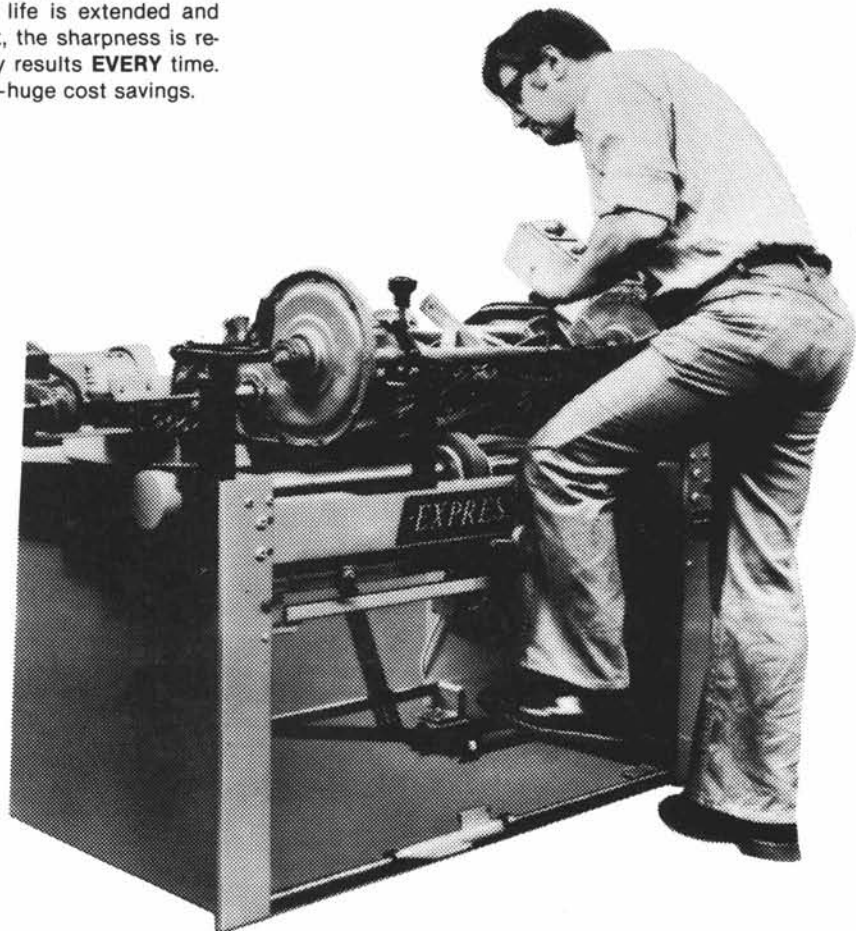
PERFORMANCE: PERFECT CYLINDRICAL GRINDING—THE EXPRESS DUAL Way—no lapping and therefore **NO RELIEF GRIND** is necessary.

Contact is not made between the reel and bedknife. Any contact would seize the reel solid. Result: over tightening is impossible. Reel and Bedknife life is extended and because of reduced metal contact, the sharpness is retained longer. Guaranteed perfectly results **EVERY** time. No lapping or relief grind needed—huge cost savings.

SPEED OF OPERATION: A gang mower can be finished, including bottom blade, in around 20 minutes—while a Greens Unit can be on and off the **EXPRESS DUAL** in under 10 minutes.

LABOR: No skilled labor required. Fully automatic after loading. No training problems with labor change.

THE UNCONDITIONAL GUARANTEE:
Money Back/Satisfaction Guaranteed



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